THE LIBRARY OF THE
JAN 8 1945
UNIVERSITY OF ILLINOIS

THE BUILDER

INCORPORATING

"ARCHITECTURE" AND "THE BRITISH ARCHITECT"

VOL. CLXVII DECEMBER 1 1944 No. 5313

# SCOTTISH HOUSING

THE position and requirements of housing in Scotland have been very carefully considered by a sub-committee of that advising the Scottish Department of Health under the chairmanship of Mr. G. P. Laidlaw, O.B.E., M.A., B.Sc.—which has now issued a most informative report * to accompany that of the main committee, entitled "Planning Our New Homes," which appeared a short time back and has now reached a circulation of some 40,000 copies. This dealt with the types and designs for future houses, and the present publication follows on with a review of the extent of the demand for these and the factors dictating the organisation and distribution of housing in general.

The results of this investigation indicate that some half million homes should be built to place housing in Scotland in a satisfactory position. This seems a high figure relatively to the population which is only 12 per cent. of that of England and Wales, but after a study of the conditions it will be found difficult to challenge it. With a population of over 41 millions, the area south of the Tweed built 4,233,712 houses—and Scotland, with under five millions, 344,209, due to the fact that in Scotland only just over 100,000 were contributed by private enterprise, while in the South over three millions come under this head; so that in 1938 it was estimated that Scotland still needed 300,000 houses to make up the shortage of homes for working people.

The age (at a point between 8 and 14) at which children are entitled to the same cubic space as adults has not yet been definitely defined. It has, of course, to be justified from both the hygienic and economic points of view and *ex-cathedra* statements are suspect. Scottish views (*vide* "Planning Our New Homes") advocate the lower age, and this has had medical support in general terms, but the determining factors of the child's lung capacity and rate of breathing, relatively to adults, have not been stated as a basis for the recommendation.

With war damage and another six years to accentuate obsolescence, it is easy to realise that this three hundred thousand can very well have risen to half a million, but there are additional considerations, dealt with in this Report, emphasising the demands it makes. The proportion of houses to population in the two sections of Great Britain are about equal, and there is no very significant difference in the ratio of unfit to sound houses, but England has nothing comparable to Scotland's overcrowding problem. The proportion of houses of two rooms or less in Scotland was, in 1931, about ten times as great as in England, and in 1938 overcrowded houses were still in the proportion of six to one. From this one can see that Scotland needed a larger ratio of house building than England, when as a matter of fact she got some eight or nine thousand per annum less.

Traditional city building in Scotland has accepted much greater densities than in the South, as is exemplified in Glasgow, where it is quoted that some 40 acres carry over 100 houses to the acre, and a further 60 over 70 houses; other cities are nearly as densely occupied in small areas, and even in the outer suburbs lofty blocks of flats may be seen, not so designed by reason of a need to economise land, but merely because this was a standard type.

Early in its investigations, the Committee, in addition to the above problems, found itself faced with two sets of issues. One set arose out of the need to distribute new homes on a national basis so as to allow of population movements keeping pace with changes in industry, commerce, transport, etc. The second set developed out of the dispersal of new houses in particular localities related to existing towns, the provision of old and new industrial areas with public services such as water and drainage and local and regional planning generally. Evidence on these points was secured from seven authorities and associations of these, from 23 professional and social organisations, and from private individuals. As the result, serious defects in existing house distribution were revealed. It is expected that some 60 per cent. of the factories at present working on war output will be continued for post-war production, and that additional trading estates will be added to the four now existing.

The Clyde Valley area, the report on which was reviewed in our issue of November 3, is taken as a typical illustration of the relationship between industry and housing. It is, in fact, by far the largest industrial centre, and with the adjoining West Lothian district stretching to Edinburgh, accommodates more than half the total population of Scotland. It would be wise to look elsewhere in planning for the improved industrial developments that would result from the provision of the hydro-electric plants now under consideration, allowing, as these do, so much latitude in distribution of power. In studying the relationship between industrial and agricultural production, it is clearly economical to provide the first with an extensive zone of land cultivation so as to afford quick and cheap food supplies.

The distribution of housing in rural areas is an important feature in this report. Houses, it is claimed, should be grouped as far as possible in village communities serving a number of farms, so that water and drainage can be supplied satisfactorily; but the distance from work should certainly not exceed three miles; small rural industries should find a place in these villages and thus a diversified population will be secured. At the same time, no marked change in the structure of the existing typical crofting community is recommended, more compact development being possible only where crofting is combined with light industry in some form. A similar attitude may be taken up towards the fishing communities, which have, of course, an existing definite basis for their organisation. In all cases a large proportion of the rural houses are unsatisfactory and need reconditioning or rebuilding.

The task of the local authorities is a heavy one and if it could be made lighter by procedure offering greater encouragement to private enterprise in housing, bringing its activities nearer to the proportion found in England, progress would be accelerated. It seems likely that Scotland would support an increased population and not need to send some 30,000 per annum overseas as was usual a few years ago.

* Distribution of New Houses in Scotland. Report by the Scottish Housing Advisory Committee. H.M. Stationery Office. Price, 2s. 6d.

# NOTES AND NEWS

### Conference of Local Authorities.

THE National Housing and Town Planning Council has arranged to hold a National Conference of Local Authorities in England and Wales in the Central Hall, Westminster, on March 1 and 2 next. The general subjects to be discussed will be "Planning for Post-war Reconstruction in England and Wales" and "Housing the Nation." Papers will be submitted by well-known housing and planning experts at the different sessions of the Conference, special consideration being given to the prefabricated emergency houses for the erection of which extensive preparations have been made by the Ministry of Works, and the question of the use of alternative materials for building will also be discussed. Full particulars of the arrangements for the Conference may be obtained from Major John G. Martin, Secretary of the National Housing and Town Planning Council, 41, Russell-square, London, W.C.1.

### Models of Temporary Bungalows.

THE display of models illustrating suggested layouts for temporary bungalows, which is now being shown at the Ministry of Town and Country Planning, 32, St. James's-square, S.W.1, has proved so popular that it has been decided to continue the exhibition until Saturday, December 9. A number of local authorities, including some in Scotland, have inquired about facilities for visiting the display.

### Post-war Employment of Architects and Surveyors.

THE Incorporated Association of Architects and Surveyors announces that it is extending its normal employment bureau work, at its own expense, to include all architects and surveyors and assistants now in the Forces or on war work. These are invited, whether members or not of the Association, to forward essential particulars to the I.A.A.S., 75, Eaton-place, S.W.1. A register is being compiled, and steps taken to furnish every possible help in securing post-war employment.

## PRINCIPAL CONTENTS


| ARTICLES | Page |
|---|---|
| LEADER : Scottish Housing ... | 425 |
| METHOD OF MEASUREMENT : The Case for a Simplified System. By S. Hookway ... ... ... | 427 |
| CORRESPONDENCE ... ... | 433 |
| ORGANISATION AND MANAGEMENT IN THE BUILDING INDUSTRY.—3. University Extension Lecture by T. P. Bennett, C.B.E.... ... ... | 435 |
| WAGES AND BUILDING PRICES | 440 |
| FUTURE CONSTRUCTION ... | 443 |
| ILLUSTRATIONS | |
| TORQUAY NEW POLICE STATION. By H. V. de Courcy Hague, Devon County Architect | 429 |
| THE "RADIATION" KITCHEN. By Arcon, Architects ... ... | 432 |


### Architect Awarded G.M.

CAPT. A. B. WATERS, M.B.E., A.R.I.B.A., Royal Engineers, has been awarded the George Medal for his work in mine disposal in the invasion of Normandy in June.

### Employers' Greeting to Mr. Sandys.

MR. J. G. GRAY, J.P., President of the National Federation of Building Trades Employers, has pledged full and cordial support of the organised builders of the country to Mr. Duncan Sandys, the new Minister of Works. With the pledge goes the request that the builders be more fully consulted in the future than they have sometimes been in the past. Mr. Gray has written: "We have on more than one occasion had to make mild protest against the apparent unwillingness of your Department to consult us as practical men on the practical problems of the day with which your Ministry is so often faced. May I hope that during your régime we shall not be put in the false position of having to operate under schemes which we regard as essentially unsound, but which your Department has decided upon without taking us into consultation?"

### Brazilian Art and Architecture.

A NUMBER of Brazilian artists, including some of the most distinguished, have presented to the British Government a collection of 168 of their works as a demonstration of their friendship for Great Britain and of their admiration for the part she is playing in the war. The pictures, after public exhibition in Rio de Janeiro, recently arrived in this country. They are now on view at Burlington House, London, and afterwards it is proposed to show them in the provinces, under arrangements made by the British Council. The proceeds from sales of the pictures will be given to the R.A.F. Benevolent Fund. A collection of photographs of Modern and Colonial Brazilian architecture, entitled "Brazil Builds," selected by the New York Museum of Modern Art, has been lent by the Anglo-Brazilian Society in London for exhibition with the paintings. The exhibition was opened by Lord Sherwood, Under-Secretary of State for Air, on Wednesday, November 22. It will be open to the public from 10 a.m. to 5 p.m. on week-days until December 17.

### Abinger Parish Church.

MR. FREDERICK ETCHELLS, F.R.I.B.A., has been appointed architect for rebuilding Abinger parish church, which was almost entirely demolished by a flying bomb last August.

### Edward Johnston.

WE regret to record the death of Mr. Edward Johnston, calligrapher and designer of lettering, at the age of 72. Mentor of Eric Gill and other distinguished pupils, Johnston will best be remembered by the block-letter alphabets which he designed to indicate stations and routes for London Transport services.

### Steel-framed Houses at Northolt.

THE British Iron and Steel Federation, of Egginton House, Buckingham Gate, S.W.1, has issued a well-produced brochure dealing with the prototype houses recently erected by it on the Government experimental housing site at Northolt. It includes excellent reproductions of technical drawings and photographs, together with descriptive notes. Mr. Frederick Gibberd, F.R.I.B.A., is the architect, and Mr. Donovan H. Lee, M.Inst.C.E., the consulting engineer.

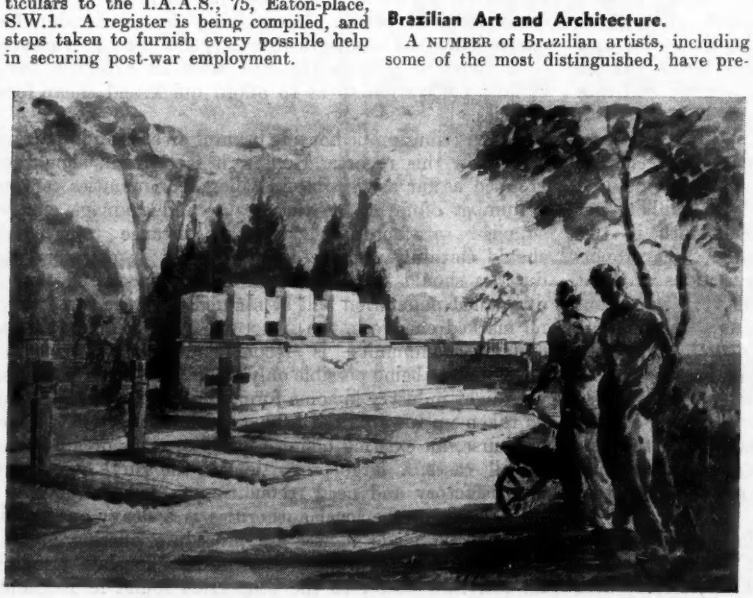
### James Cumming Wynnes, O.B.E.

THE death has taken place, on November 20, of Mr. James Cumming Wynnes, O.B.E., F.R.I.B.A.

### Professional Announcements.

MR. CECIL A. GOLDING, F.S.I., L.R.I.B.A., recently appointed architect and surveyor to Youngs, Crawshay and Youngs, Ltd., Crown Brewery, Norwich, will be glad to receive trade catalogues and lists in connection with post-war reconstruction of brewery and licensed houses.

MR. B. IVOR DAY, F.R.I.B.A., chartered architect, has moved from Halifax House, Bristol, 1, to new offices at 39, Broad-street, Bristol, 1. Telephone No. : 25655.



PRISON CAMP MEMORIAL.—A drawing of the memorial in Stalag Luft III to the 47officers of the R.A.F., Dominion, and Allied Air Forces shot by the Germans after a mass escape. The memorial, designed by F/Lt. W. Wylton Todd, A.R.I.B.A., was constructed entirely by officers in the camp with materials supplied by the Germans. The drawing is by F/Lt. B. L. Kenyon.

## From *The Builder* of 1844.

*Saturday, November* 30, 1844. *Price* 3*d.*

WE thought we had last week completed the catalogue of calamities to buildings, but we find, as if on purpose to place the subject in a stronger light, other similar misfortunes have just occurred . . . so that we have still the same alleged causes, greenness and maladroitness in the temporary management of the building operations. Thus, more and more does there appear to be requisite an adequate controlling power, which shall watch over such affairs and put in execution all means practicable for gaining the desired end.

# THE METHOD OF MEASUREMENT

## A CASE FOR A SIMPLIFIED SYSTEM

**By S. HOOKWAY, F.S.I.**

A MEMORANDUM issued by the Quantity Surveyors' Committee of the Chartered Surveyors' Institution (reported in *The Builder* of August 25) informs us that in considering post-war building "it will be desirable again to review the Standard Method of Measurement, not only to bring it into line with the latest trends of practice, and to incorporate additional sections to cover specialists' work, but so to amend the text that clauses which have given rise to questions and answers will be clarified."

The third edition of the Standard Method of Measurement was published in September, 1935, and the nine years that have since elapsed have seen a considerable amount of innovation in building technology, and the popularisation of features and of methods of construction that were hitherto unusual or in some cases experimental; many materials and methods that are now commonplace had scarcely a mention in the 1935 Standard Method. Plaster-board, for example, had not arrived, nor metal trim. Even wallboard found only an analogous mention in a sub-paragraph of Joiner: "Linings of insulating material, *such as asbestos sheeting*, shall be given in feet superficial." Corrugated asbestos sheeting was a "stray" that had to have a home found for it in Steel and Ironworker. Prefabricated structural units (assembly of) was not on the map at all.

It is well recognised that the Standard Method is the product of discussion and agreement between quantity surveyors and builders, and adopted by the Chartered Surveyors' Institution and the National Federation of Building Trades Employers. As was pointed out in the first edition, the Standard Method was originated in order to codify a system of measurement that would be acceptable to all parties concerned, and would be above the idiosyncrasies of the individual surveyor. That it succeeded in its object is beyond question. The Standard Method is a monument of orderly compilation, meticulous definition and comprehensive application. But it is important to realise that even if it had not achieved so high a level, it would still be the agreed syllabus for quantity surveying, and a bushel under which the individual surveyor must needs hide his own candle. The only fault of the Standard Method (if fault it may be called, since it is a condition to which most human conceptions must succumb) is that it becomes "dated," and is therefore subject to the necessity of periodic revision.

We have seen that a revision is now impending; it would appear, therefore, that the time is not inappropriate for the idiosyncrasies of the individual surveyor to blossom forth for a short season and to find expression. Unlike the course of a judicial inquiry, this short spell during which the Standard Method is again *sub judice*, gives the individual surveyor an opportunity for criticism and commentary. For a short season pet theories may be allowed to fructify from the blossom of our own peculiar logic, but we shall be wise to recognise that whatever we have to offer will need to show good shape and possess undoubted vitality if it is to withstand the vigorous buffeting it will get from the Joint Committee.

There are pegs enough to hang our ideas on. In the 1935 edition we have Preliminaries and 15 Trades (including the omnibus Plumber), comprising 475 main clauses. Including subdivision of clauses (adding about 750) and nearly 100 Questions and Answers, we have over 1,300 particular items to engage our attention. It can be taken further. Making a number of random counts throughout the work with a view to breaking down the analysis to integral references, I found that the average was nearly four separate ideas per subclause. It will be apparent from this analysis that if one professes to have the Standard Method by heart, one must engage to have the answer pat to any one of 5,000 questions. A formidable total, and it will doubtless not escape the notice of the Joint Committee when revisions and additions are under consideration. Candidates for examination would not be blamed for suggesting that the examiner in this subject had a sinecure. They might even be encouraged to ask a few questions back as part of their paper, with the object of putting the examiner in a humble frame of mind.

It is reported also that discussions are proceeding with a view to exploring the question of a simplified form of quantities for the superstructure in housing, so that this important part of post-war building may be widely tendered for on the satisfactory basis of a bill of quantities. A strong recommendation in this regard is made, it is observed, in the recently published report to the Minister of Works on "The Placing and Management of Building Contracts," which was reviewed in *The Builder* for November 17. It is a matter that might be taken further than being applicable only to housing. It appears fairly certain that for several years we shall find building severely under restriction, and carried out on what we have come to describe as utility lines and austerity standards. Whilst we hope to see some improvement on the hutted type of building that has fulfilled such an astonishing variety of purposes in the war years, we cannot expect much scope yet awhile for architectural ambition (except on paper), nor for individuality in design or use of materials. Austerity building of a "temporary" nature, with more or less standardised units, will for some years be the most we can expect, and it seems sensible, therefore, to consider whether a system of simplified quantities should not be accepted as a temporary measure consonant with the sub-standard nature of the work. The guiding principle must be, of course, that the estimator be given a sufficiency of information to arrive quickly at an accurate price.

The chief objection to simplified quantities is, from the contractor's angle, that he may be required to carry out extra work of a similar general description to that quoted for, but in which the labour-detail factor is variable to his detriment; and that, since the labour factor is not necessarily constant as between various types of building, even trade for trade, the onus of calculating this factor is put upon the estimator instead of being left with the quantity surveyor. I think that both these objections are fair when the quantities are only a schedule for pricing and such as may be applied to various types of buildings of uncertain total value; but where there is in fact a precise bill of quantities for a given building, these objections are not very significant, as will be demonstrated later.

The objections from the quantity surveyor's point of view are more from the tactical angle than any other. It is felt that the client may ask, "If you can take out an adequate bill of quantities in simplified form for one type of building, why not for another? If you can turn out simplified quantities in double-quick time for a house or a small factory, why must you talk about going into detail when it comes to a bank or an hotel? If municipal housing, why not the municipal buildings?"

The objection is, of course, not a sound one. A bill of quantities is a tool designed for a purpose. We do not use an expensive and complex tool where a simple instrument is equally effective; neither do we waste time and effort in employing a light general purpose tool on a job that calls for particular and complicated manipulation.

Another objection arises from the quantity surveyor's training. He feels, curious as it may appear, that there is something of an art as well as a science in quantity surveying, and to produce a sub-standard bill of quantities is an affront to his training and to his ability. He feels, further, that as in the laws of currency you cannot keep good and bad money in circulation at one and the same time, since the bad will drive out the good, so the concurrency of two standards in quantity taking will result in the sub-standard bill taking predominance. Again, the objection is not sound; it is not a question of the good *versus* the bad, but of observing a proper sense of values. A micrometer is not a better nor a worse tool than a pair of callipers. It depends upon the job to be done. It is a question of the relation between the means employed and the end to be achieved.

The Ministry of Works' "Placing and Management of Building Contracts" report already referred to recommends a reduction in the number of measurable items in bills of quantities for housing. The issue is whether the estimator can fairly be expected, when dealing with one structural feature, to give a unit price that will cover various dimensional factors and at the same time include for all labours usual to that particular feature in that particular class of work. Taking brickwork as an outstanding example, and referring to a bill of quantities for a small,

## COMING EVENTS

**Saturday, December 2.**

INSTITUTE OF PHYSICS. Conference on "Selection and Training of Personnel for Industry." Royal Institution, Albemarle-street, W.1. 2 p.m.

**Monday, December 4.**

SOCIETY OF ENGINEERS. Film on "Welding of Aluminium," followed by Dr. H. G. Taylor on "Light Alloy Welding." Geological Society's Rooms, Burlington House, W. 5 p.m. (tea, 4.30 p.m.).

**Tuesday, December 5.**

DESIGN AND INDUSTRIES ASSOCIATION. Mr. F. R. Yerbury on "Design in Mass-Produced Houses and Equipment." Chairman: Sir Alfred Hurst, K.B.E. At Royal Society's Rooms, Burlington House, W.1. 1.30 p.m. (sandwich lunch, 12.45 p.m.).

HOUSING CENTRE. Lady Simon on "Local Government and Citizenship" (discussion 7 in "Education for Householding"). 13, Suffolk-street, S.W.1. 1.15 p.m. (buffet lunch, 12.45 p.m.).

**Thursday, December 7.**

TOWN PLANNING INSTITUTE. Mr. F. A. C. Maunder on "A Factual Basis for Reconstruction." Caxton Hall, S.W.1. 6 p.m.

A.B.T. Sir Charles Reilly on "Community v. Suburban Planning." At Westminster Hospital Medical School, Horseferry-road, S.W.1. 6.30 p.m.

**Friday, December 8.**

TOWN AND COUNTRY PLANNING ASSOCIATION. Annual Conference. Waldorf Hotel, Aldwych, W.C.2 (continuing over Saturday).

ROYAL INSTITUTION. Col. E. F. W. Mackenzie on "London's Water Supply." 21, Albemarle-street, W.1. 5 p.m. (tea, 4.30 p.m.).

straightforward job, I find that, as compared with the three main items for brick walling there are ten items measured for simple labours, in chases, oversailings, beamfillings, cutting and pinning edges, raking out joints and the like. The value of the ten subsidiary labours totals £2 10s. 8d., as compared with the three main items of walling totalling £184 17s. 3d.; that is, as 1.4 is to 100. If, then, we were to ask the estimator to value the ten subsidiary labours "by sight of the ten subsidiary labours totals to risk not more than 1½ per cent. on the price of his bulk brickwork. Can this be said to be unreasonable?

It is observed that when the revision of the Standard Method of Measurement was undertaken in 1935 it was decided that the separate measurement of labours on stonework was no longer necessary or useful for the purpose of estimating. From the descriptions given in the bill and a sight of the drawings the estimator was required to figure out his over-all labour price as related to the cube of stonework. If thus with stonework, surely with so flexible a material as brickwork it should be even simpler to calculate an over-all labour price, given a sight of the drawings. Is it observing a sense of proportion to measure an additional ten items for 1½ per cent. extra value? Be it noted that the estimator has always been willing to undertake the risk of pricing his scaffolding "by sight of drawings" (often without it), and this was usually reckoned at about 5 per cent. of the bulk brickwork price for buildings of more than single storey.

### Analysis of a Simple Bill.

The bill of quantities which is analysed hereunder is a bill for a single detached house of standard pre-war design and layout, brick-built and faced, with timbered and tiled pitched roof. The work was taken out in full detail according to the Standard Method of Measurement, and, in respect of the work above dampcourse level, it comprised 434 items of measurement, totalling £770 in value on 1939 pricing. The bill in question was priced by many contractors during the years 1936-39.

In the analysis that follows it is to be especially noted that I am dealing entirely with *values per item* billed, not with *prices per unit* billed; in other words, I am relating the values in the £ s. d. column of the bill to the total number of items employed in the complete production. The billed items have been abstracted into the various *value* categories noted in the third column.

DWELLING HOUSE. ANALYSIS OF DESCRIPTIONS ABOVE DAMPCOURSE LEVEL.

| Line reference. | Number of items in the category analysed. | Value of the category as a percentage of the whole Bill. | Money value of all items in this category. | Previous column represented as a percentage of total value. |
|---|---|---|---|---|
| | | not exceeding | £ s. d. | Per cent. |
| 1 | 1 | 20% | 150 12 3 | 19.6 |
| 2 | 1 | 6% | 45 5 8 | 5.9 |
| 3 | 3 | 4% | 83 6 7 | 10.8 |
| 4 | 16 | 2½% | 196 5 10 | 25.5 |
| 5 | 15 | 1% | 86 6 11 | 11.2 |
| 6 | 20 | ½ of 1% | 51 16 0 | 6.7 |
| 7 | 57 | ¼ of 1% | 74 0 9 | 9.6 |
| 8 | 251 | 1/10 of 1% | 79 13 6 | 10.3 |
| 9 | 67 | 1/100 of 1% | 2 19 0 | 0.4 |
| 10 | 3 | unpriced | – – – | — |
| Totals .. | 434 items. | | 770 6 6 | 100.0 |

An examination of this tabulation offers many interesting features, and indicates that, given a simple type of building to be measured, with one or two constructional features predominating, the case for simplified quantities is at any rate worthy of careful consideration. A commentary on some outstanding features follows.

Line 1, items in the category not exceeding 20 per cent. of the whole, has only one entry, and this is, of course, brickwork measured in rods superficial. Line 2, items in the category not exceeding 6 per cent. of the whole, also has only one entry, and this happens to be the item "Extra only for facings." It is seen, therefore, that the bulk items for brickwork and the facings thereto represent 25.5 per cent. (column 5) of the total value of all work above dampcourse level. Line 3, items in the category not exceeding 4 per cent. of the whole, shows only three entries, and they are the p.c. item for fires and stoves, roof tiling measured in squares, and render float and set on walls measured in yards superficial. Except for the foregoing five items, no other individual item in the bill is valued at more than 2½ per cent. of the total.

The next interesting selection is to draw a line halfway down the table, after line 5. We see that a total of 36 billed items up to this line (out of a sum total of 434) covers the measurement of 73 per cent. of the total value of the bill, or, put another way, as few as 8 per cent. of the billed items dispose of nearly three-quarters of the total value, leaving the reciprocal observation that the 92 per cent. remainder covers only a quarter of the total value.

Again, draw a line below line 7, and we find that a total of 113 billed items up to this line covers the measurement of 89.3 per cent. of the total value, or, in other words, it takes only 26 per cent. of the billed items to dispose of nearly nine-tenths of the total value, leaving again the reciprocal observation that the 74 per cent. remainder covers only one-tenth of the total value. This remainder, shown in the last three lines of the tabulation, is where we find a sense of proportion sadly lacking. Here are 321 items of measured work, of individual value not exceeding one-tenth of one per cent. of the whole, and of total value representing no more than 10.7 per cent. of the whole. And, further, of these 321 items we find (see line 9) that it took no fewer than 67 descriptions of measured work to deal with items of individual value not exceeding one-hundredth of one per cent. of the whole (actually not exceeding 1s. 6½d. in this particular bill), and of total value representing not more than 0.4 per cent. of the whole (actually 59s. in this bill). *Sixty-seven billed items to account for 59 shillings!*

The bill of quantities that I have analysed here is, so far as technicalities go, a perfect bill; it follows the Standard Method in all particulars and would serve as a text-book model. But in the light of the lower lines of the foregoing tabulation, can we afford to regard it as other than an academic exercise in dotting *i*'s and crossing *t*'s? Both the quantity surveyor and the contractor's estimator are men of a skilled profession; this would seem to be making fun of their skill. Sixty-seven entries for 59 shillings savours more of the clerk who enters up the postage-book than the skilled surveyor and estimator.

It may be argued that this is not entirely a fair criticism, since the 67 items are dispersed throughout the remaining 367, and the pricing of them is an automatic affair, related almost always to "parent" items. Agreed; but those 67 items represent probably more than 100 dimensions booked by the quantity surveyor, then abstracted, checked, billed, and typed, before going out to be priced. Is there not very much more clerking in this than quantity surveying?

There still remains the cynical surveyor to reply to. He will say: "Yes, you may find that they have priced the 67 items to a total value of 59 shillings, but if you had left the items out you would find that the contractor's value for them in the extras account would be more like 59 half-crowns." Maybe, but the aim of simplified or abridged quantities would be so to describe the measured items that the full information would be there without pedantry.

Taking a cursory glance through the bill here analysed, one comes across the following evidence of where the sense of proportion goes overboard:—

It took 6 *items* to deal with 1½ cwt. of steel reinforcement, total value 28s. 3d.

It took 7 *items* to deal with the extra cost of facings in reveals to the total value of 20s. 5d. (representing less than 2½ per cent. of the value of the main item for facing).

In Joiner, Sundries, one finds 22 *consecutive items*, not one of which exceeds 16s. in value, and totalling £5 19s. 2d.

Further along in Joiner the staircase embraces 32 *items* of measurement—treads and risers, landing and strings (four items) represent £10 5s. 3d. value, the remaining 28 *items* are detailed out at £6 17s. 11d. total, averaging less than 5s. per item.

Internal Plumbing and Hot-water Fitting (including builder's work in connection) covers seven full pages, comprising 87 *items* (excluding the p.c. sum for Sanitary Fittings) for a total value of £35 2s; 87 *items—one-fifth of the whole bill!*

And finally, in Painter, for painting on woodwork, excepting the main superficial item, it took 17 *items* to dispose of bits and pieces value £3 2s. 5d.

In each of the above cases it should be well within the ability of the quantity surveyor to give the estimator the information he requires without going into such scrupulous detail. It is true that the bill here analysed is an unusual one, in that housing was rarely considered to be within the scope of detailed quantities, particularly a single house of less value than £1,000. Nevertheless, it is an example worth examining in detail, because it is illustrative of the points that require emphasis, and because the same relative proportions will be found applicable to all work of similar character, that is to say, small blocks of flats, simply planned industrial buildings, and most types of schools.

The overriding factor that has to be borne in mind in dealing with such work as this is that the estimator has something more than the bare quantities to go on; he has the training and experience that guide him to a close valuation of labour factors applicable to standard type construction. As a final argument in the case for a simplified mode of quantity taking for such work (which should be issued as an appendix to the Standard Method of Measurement) there is the homely English proverb which deprecates the uncalled-for advice proffered to one's grandmother as to how she should deal with shell-eggs. Give the estimator the round quantities by all means, but permit him to use his talents when it comes to assessing the labour detail values relating to the "bread-and-butter" stuff of building.

# TORQUAY NEW POLICE STATION

## FOR THE

## DEVON STANDING JOINT COMMITTEE

### H. V. DE COURCY HAGUE, F.R.I.B.A., COUNTY ARCHITECT

DETAIL OF ENTRANCE TO CARRIAGE WAY.

OPENED BY THE RT. HON. HERBERT MORRISON, the Home Secretary, in March last, this building was commenced in April, 1941. Owing to wartime conditions, the elevational treatment had considerably to be cut down, the whole of the stone dressings to windows and plinths being omitted and wood substituted for steel windows. Generally, the complete scheme provided for a four-storied building in which the ground-floor accommodation comprised the general administrative offices, with a cleansing station and heating chamber, etc., in the basement; and single constables' quarters and recreation rooms on the first floor. The second and third floors were to contain quarters for the married staff. What has actually been carried out, however, is the ground and first floors only, and on the first floor the accommodation has been remodelled to provide married quarters for the inspector. The detailed accommodation is as follows :—

BASEMENT, which contains a cleansing station as well as the heating chamber. In peace time the portion now utilised for cleansing station would revert to its originally intended use as a rifle range.

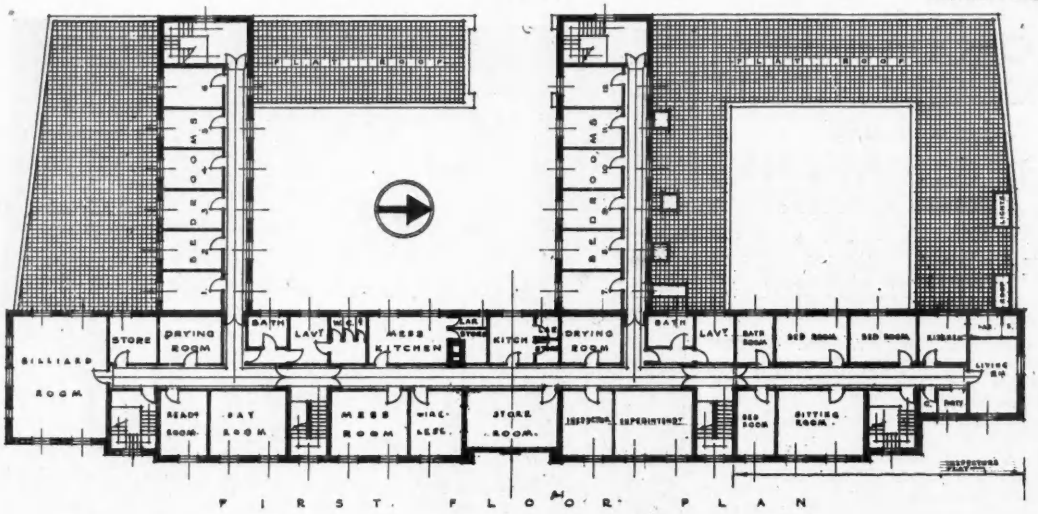
GROUND FLOOR.—Block north of archway contains charge room, telephone, inquiry office, sergeant's office, inspector's office, waiting-rooms, records, C.I.D. laboratory and dark room. There are six male cells each with separate w.c. adjoining, together with detached bathroom, and exercise yard. There are two female cells with separate w.c.'s, together with matron's room and bathroom, and exercise yard. Accommodation is provided for 8 cars and a cycle store.

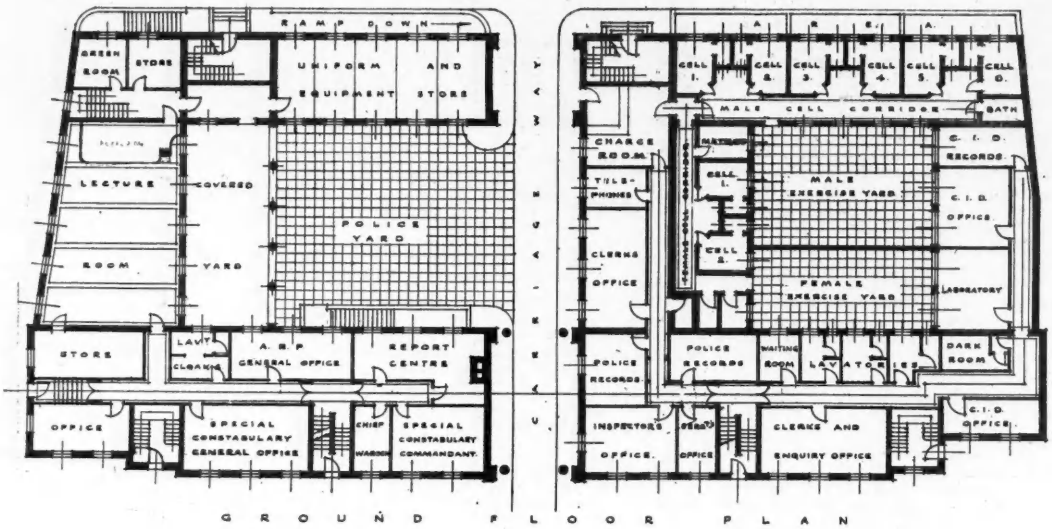
FIRST FLOOR.—Self-contained flat for inspector, sueprintendent's office, chief inspector's office, wireless room, mess kitchens, drying rooms, day-room, billiards room and 12 single constables' bedrooms.

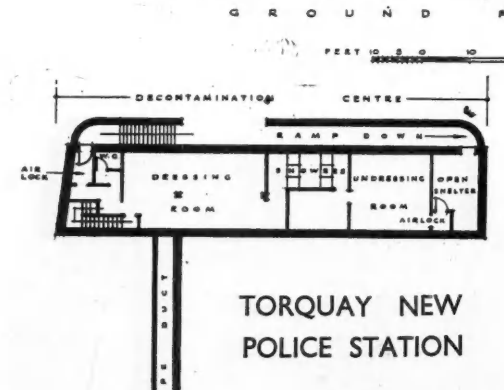
The building is a reinforced concrete structure with brick interfilling faced with local sand-faced bricks and reconstructed stone dressings to the central archway entrance, copings and sills. The general contractors were Messrs. R. E. Narracott and Sons, of Torquay, and the clerk of works was Mr. E. G. Harris.

The following firms were also associated with the work : G. N. Haden and Sons, Ltd., Torquay, heating and hot-water installations; A. R. and E. Wallis, Paignton, electrical installation; British Reinforced Concrete Engineering Co., Ltd., Stafford, reinforced concrete frame and fabric reinforcement; and Wharf Lane Concrete Co., Ltd., Ilminster, cast stone.

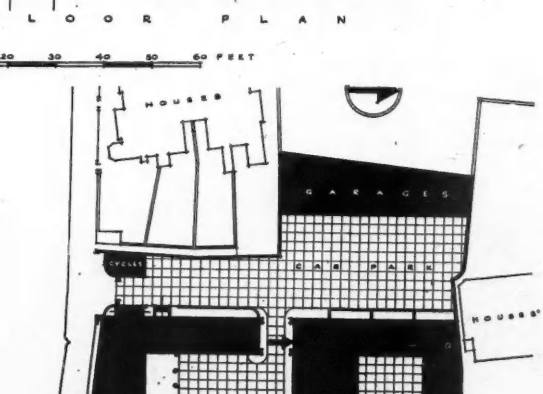
GENERAL VIEW OF ENTRANCE FRONT.

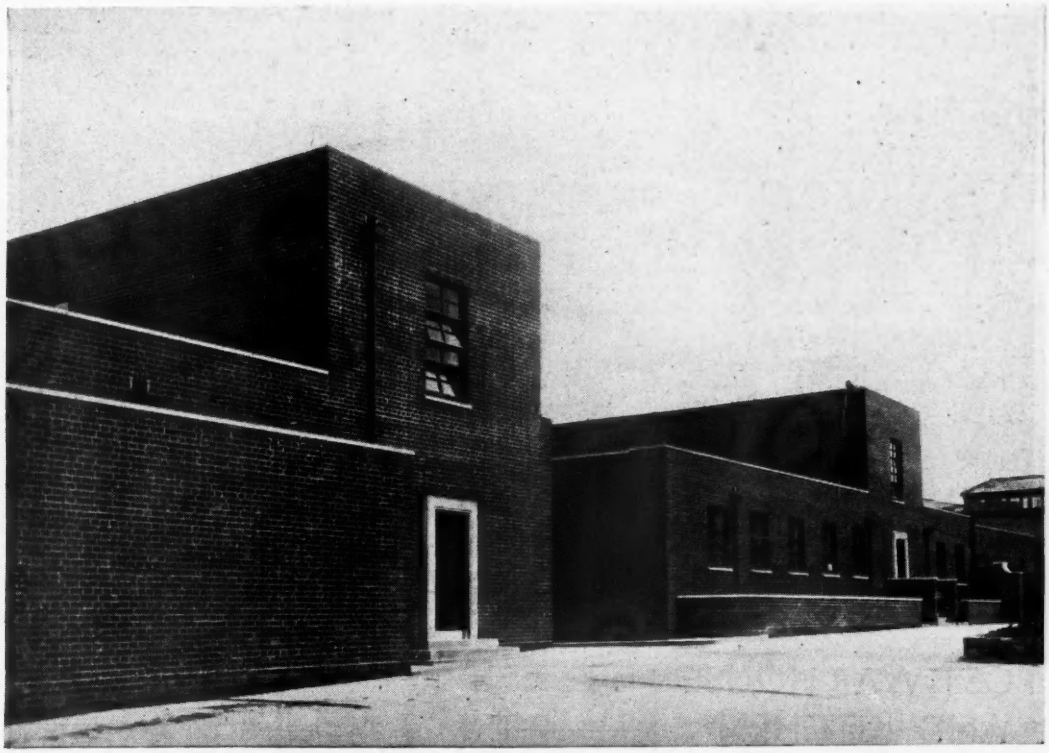



## TORQUAY NEW POLICE STATION





THE WEST FRONT, FROM THE CAR PARK.

TORQUAY NEW POLICE STATION. H. V. DE COURCY HAGUE, F.R.I.B.A., DEVON COUNTY ARCHITECT.

# POST-WAR SUPPLY QF ARCHITECTS

## R.I.B.A. POLICY.

THE following is taken from a statement issued by the R.I.B.A. :—

If order is to be created out of the confusion caused by the war, the future of the profession must be the result of careful planning, particularly in respect of demobilisation, recruitment and training. Moreover, these matters must be ordered in relation to the Government proposals for post-war reconstruction.

In February, 1943, a White Paper on "Training for the Building Industry" was presented to Parliament by the Minister of Labour and National Service. This paper gave a figure of 1,250,000 as the maximum post-war strength of the building industry, a strength which it is understood is to be reached at the end of the fifth year after the war. From the recent White Paper on demobilisation it may be assumed that this five-year period will commence when men and women are released from the Forces to take up civilian employment. Discussions have taken place and Government Departmental inquiries have been made to determine the number of architects likely to be required when the building industry reaches this maximum strength. However, in 1944 the R.I.B.A. Council instructed the Demobilisation Committee to prepare an independent report upon which the Institute might base its policy on demobilisation and recruitment. This report was approved by the Council and submitted to the Ministries concerned. In estimating the number of architects likely to be needed in the post-war period, the Demobilisation Committee decided that calculations must of necessity be based on the figure referred to in the White Paper and upon the proposals to reach that figure in five years. After the most careful consideration of the many factors involved, it was found that when in due course the building industry reaches its maximum strength, the number of fully qualified architects for whom *full and regular* employment can be provided will be only slightly larger than before the war.

Apart from statistical considerations, great importance has been attached to the fact that in pre-war years many architects were under-employed, and that although a mechanical continuity of output is not practicable, a much fuller degree of employment will be necessary if architects and their assistants are to be adequately recompensed. Note has also been taken of the recommendations contained in recent official publications and reports that greater use should be made of the services of architects.

It is also anticipated that town planning will require a number of architects whose activities will not be directly related to the output of the building industry, and that for a period after the war the War Damage Commission will also need the services of architects in an administrative capacity.

Having determined the total numbers of architects needed during and after the five years' expansion period in the building industry, the Report indicates the manner in which the profession will have to be built up to the required strength. In this connection it is considered that an appropriate number of architects should be engaged on advance planning at least twelve months before the corresponding ratio of building operatives becomes available.

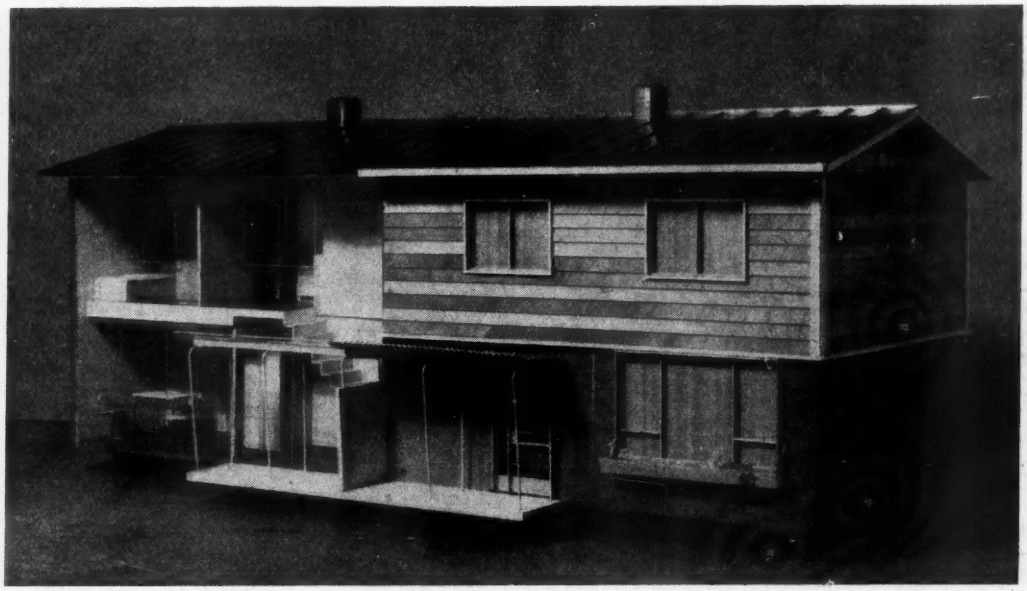
The number of architects expected to be available in this country at the end of the war with Germany is considered sufficient to provide for the greatly depleted building industry at that stage, but in view of the fact that demobilisation, recruitment and training of craftsmen will thereafter be arranged to ensure the rapid building up of the industry, immediate action will similarly be necessary to secure an increase in the number of architects available to meet growing needs. *This increase will only be achieved by the earliest possible release from the Forces of all qualified architects, students and assistants.*

As far as may reasonably be estimated, the services of all qualified architects released from the Forces could be fully absorbed during the first year after the commencement of demobilisation. Increases needed during the remaining years of the expansion period can be provided from three sources, the combined numbers of which are estimated to be approximately equal to the demand :—

1. Students whose full-time studies have been interrupted by national service.
2. Assistants whose training was interrupted by national service.
3. Those who are at present, or may become, full-time students.

In the case of categories 1 and 2, their services as qualified architects will be needed during the second, third and fourth years, and because most will require two or three years in which to complete their studies, they must be released during the first year after the end of the war with Germany.

In the case of category 3, few would be able to complete their training before the end of the fourth year, by which time the supply from other sources would have become exhausted. For this reason, and in order that the profession may be maintained at a satisfactory level, the claims of national service must be carefully considered in relation to architectural education and training.



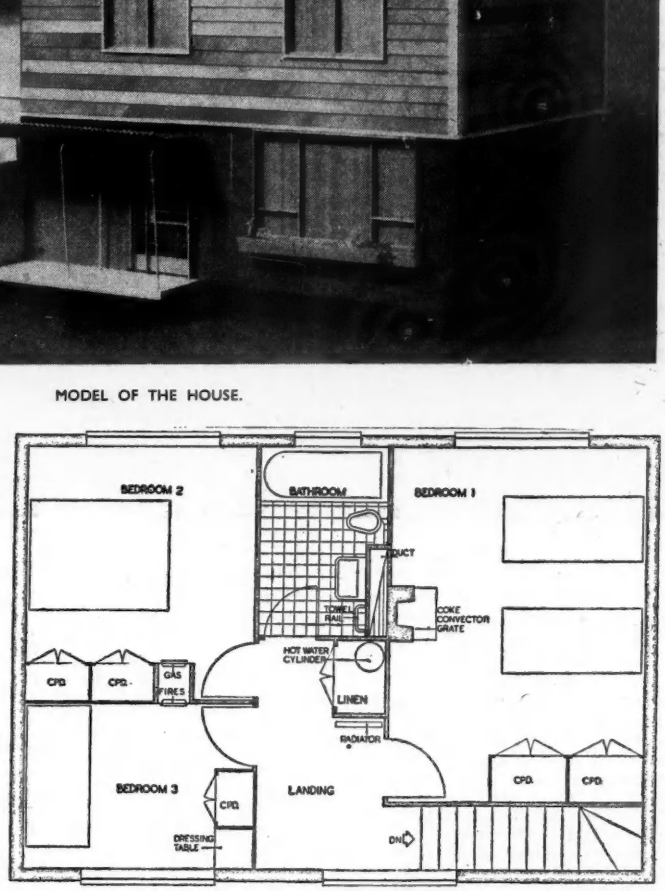
MODEL OF THE HOUSE.

# POST-WAR HOUSE AND KITCHEN

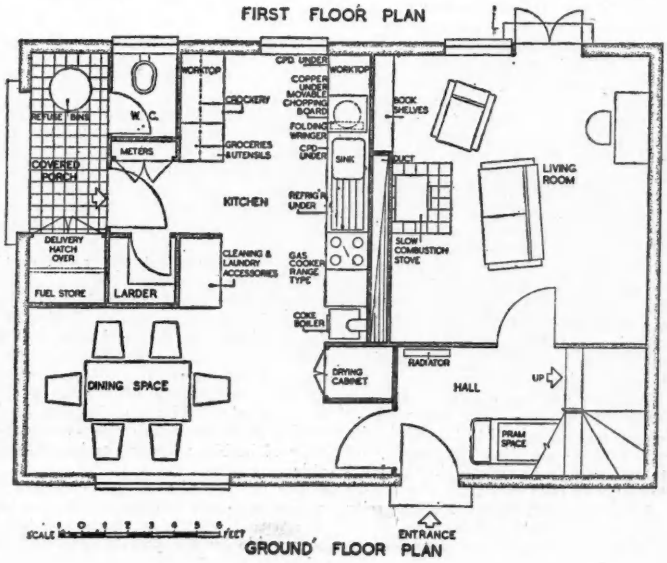
## DESIGNED BY

## RADIATION, LTD., IN CONJUNCTION WITH ARCON

THE DESIGN FOR THE POST-WAR HOUSE and kitchen has been prepared by Radiation, Ltd., in collaboration with Messrs. Arcon, chartered architects. The plan has as its central feature boiler, hot-water tank and delivery services, compactly grouped and competent to deliver abundant hot water for household purposes and central heating for a moderate fuel expenditure. Grouping is effected by the use of an internal duct in which supply and waste pipes and principal flues are housed. Hot water is by a coke boiler, and a slow-combustion solid fuel stove of improved design is fitted in the living-room. Bedroom 1 is heated by warmed air led by ducts from the living-room stove, and bedrooms 2 and 3 by gas fires. Hot-water radiators are fitted in entrance hall and first-floor landing. A feature of the kitchen is the dining-space, and the kitchen itself is well equipped with fitted furniture and kitchen plant (as seen on plan), the latter being gas-operated. A full-scale model of the kitchen is on view at Radiation's headquarters at Stratford-place, W.1, to which the following firms have contributed: Acme Wringers, Ltd., British Thomson-Houston Co., Ltd., Electrolux, Ltd., Fisher and Ludlow, Ltd., Hitchins Flush Woodwork, Ltd., Imperial Chemical Industries, Ltd., Peerless Built-in Furniture, Ltd., Smith's English Clocks, Ltd., Troughton and Young, Ltd., Turner's Asbestos Cement Co., Ltd.




FIRST FLOOR PLAN




GROUND FLOOR PLAN

# CORRESPONDENCE

*[Whilst we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]*

### Architects' Benevolent Society.

To the Editor of *The Builder*.

Sir,—Owing to the paper shortage, the Architects' Benevolent Society is not issuing a personal appeal by post to architects this year.

This does not mean, however, that money is not needed. In fact, our funds have never been adequate for the relief required, and at the present time we most urgently need more donations, and more subscriptions, so that we may help the many sad cases of distress and difficulty which now come before us.

In addition to the usual application we have also to deal with problems arising out of the war, such as breakdowns due to war strain, losses caused by enemy action, and temporary difficulties after discharge from war service.

The close of the year is apt to seem a sad, depressing time. How much more so to those who have the additional burdens of age, ill-health, and poverty. May I ask that every architect shall consider this letter as a personal appeal to him or her, and will respond by sending a contribution, no matter how small, as a Christmas gift for architects and architects' assistants and their families who are in great need?

Gifts should be sent to Percy E. Thomas, O.B.E., Architects' Benevolent Society, 66, Portland-place, London, W.1.

All who give will be helping a very valuable and necessary work.

Percy E. Thomas,
President, Architects' Benevolent Society.

66, Portland-place, W.1.

### Bomb Damage and the Architect.

To the Editor of *The Builder*.

Sir,—As one whose duties have brought him into close touch with the Ministry of Works, I should like to pay a tribute of respect to the retiring Minister, Lord Portal, whose selfless and conscientious work has not, I feel, received the recognition it should have done. But Lord Portal, like his opposite numbers, the Ministers of Health and of Town and Country Planning, must have suffered laymen's handicap in the sense that they had no connection with the building industry before their respective appointments.

Now that the Prime Minister has appointed Mr. Duncan Sandys as the new Minister of Works, the public may expect marked progress in the way of housing. But they may be disappointed, for Mr. Sandys is a layman also. Yet there are at least three other Members of Parliament who know the building industry from A to Z, and who would have had the confidence of the industry and, ultimately, of the public.

However that may be, it is reasonable to assume that no real progress will be made with housing whilst there is so much divided authority and overlapping between various Ministries. If it is not one Minister's job, it is one Ministry's job.

Take the present muddle—for it is a muddle—in the repair of war damage. Thousands of skilled and unskilled workmen are now engaged in London alone on that work; and complaint is rife in regard to the unlucky waste of manpower. Too frequently, I am afraid, the workmen themselves are unjustly blamed, whereas undoubtedly the cause is the lack of proper supervision and direction. Yet there are many practising architects or surveyors (some well-blessed with staffs of qualified assistants) who are idle, or whose professional work has been brought to an end by the interference of local authorities or of one or other of the Ministries concerned.

One can cite cases *ad nauseam* in which the building owner has been able to find builders ready to do the work and architects (or surveyors) ready and qualified to supervise, but their efforts are retarded or, more generally, negatived by ill-conceived Orders.

It is true that a few of the more enlightened Metropolitan Boroughs are engaging the services of professional men, but this procedure is rare. Hence the muddle which obtains and must obtain until the helm is taken by someone who, by long experience and training, understands the building industry. For if these unnecessary delays and muddles occur in the mere work of repair, what will happen in regard to the major and vital matter of rehousing?

At present we are confronted with one gigantic and, as things are, insoluble jigsaw.

G. B. J. Athoe,
Secretary, the Incorporated Association of Architects and Surveyors.

Westminster.

---

To the Editor of *The Builder*.

Sir,—With the change of the Minister of Works, now would appear the opportunity for concerted action by the building trade and all professional bodies connected therewith to bring to the notice of the Government the necessity for restricting the activities of the Ministry of Works and the local authorities to their legitimate functions, instead of allowing them to grow into a vast monopoly controlling the whole of the building industry.

The trades and professions concerned have some of the best brains in the country, and are quite capable of dealing with both bomb damage repairs and the housing shortage if they were allowed to function normally and unfettered, guided by the wishes of Parliament and the people instead of by the Ministries.

The present system of all Ministries "passing the baby" to local authorities and making them responsible, firstly, for air raid shelters, bomb damage repairs, and now housing, both temporary and permanent, must cease. In the majority of cases the borough surveyors are engineers, and neither they nor their staff have been trained or equipped for the work that they are now asked to undertake.

Following the refusal by most local authorities of the Royal Institute of British Architects' recent offer that its members should co-operate with them on war damage work, the present chaotic state of house repairs in most districts, mainly arising from the total lack of organisation, direction and superintendence, is a warning of what will happen when housing and many other forms of building are controlled by local authorities through their borough surveyors with a few architectural assistants under them.

The need for the speediest completion of the bomb damage repairs is apparent, not only for the sake of the unfortunate people concerned, but because other building cannot start or be planned until this is completed.

The architectural profession, except for very few members, has had a bad time in this war, and with the £100 and now £10 limit on building it has become a "depressed profession," but nobody seems to raise a voice in protest.

It would be interesting to hear the views of your readers on this matter.

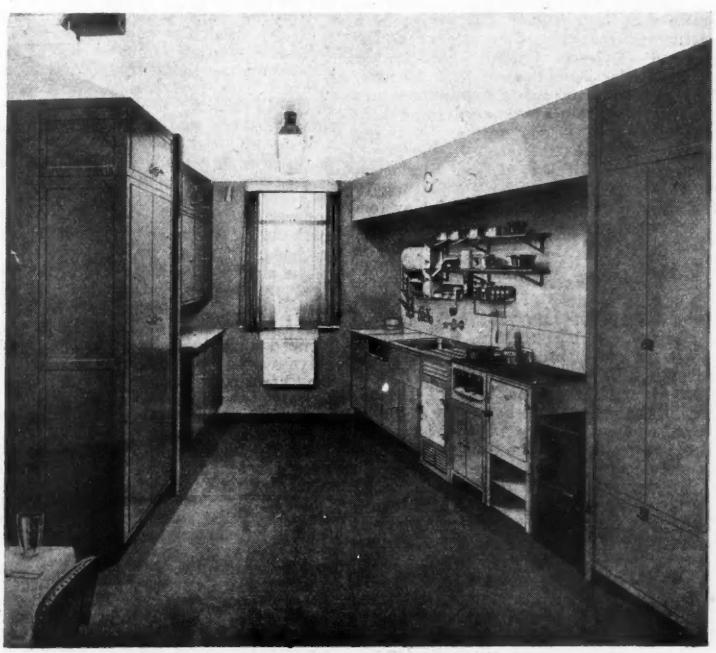
A. L. Abbott.

Westminster, S.W.1.

### Builders' Organisations.

To the Editor of *The Builder*.

Sir,—I had hoped that this discussion, so far as I was concerned, might end, for the time being at least, with my very short letter to you last week, in which I welcomed Mr. Yudkin's acceptance of my invitation to one of our Area meetings. For, as a newcomer to London, the present storm centre of "Southern



THE "RADIATION" HOUSE. FULL SCALE MODEL KITCHEN.

England," I do not wish to be involved in controversy when I have more urgent things to attend to.

But the misleading statements in a letter in your columns last week make it necessary for me to go back on my last letter by saying that the membership of the London Master Builders' Association is just under 1,200, not 250, and that so far from being a "closed shop" it welcomes all duly accredited builders to its ranks.

As for being a "parochial organisation," it is the official organisation of the builders of the capital of the British Empire, the London branch of the National Federation of Building Trades Employers, the only body recognised by the Government and the operatives and the architects and surveyors and all the rest of them as the body to consult on all matters affecting the Employers' side of the building industry.

G. H. A. HUGHES,
London, W.C.1. Director, L.M.B.A.

### Lath and Plastering.

TO THE EDITOR OF *The Builder*.

SIR,—The letter in your issue of November 17, from Mr. R. P. Bannister, President of the Federation of Plastering Contractors, raises certain matters connected with lath and plastering which are so often overlooked by most persons interested in the traditional and modern methods and conditions of this great industry.

Mr. Bannister states that "when work is carried out with correct procedure in relation to both materials and workmanship, a lath and plaster ceiling is not unstable." I am convinced that this statement is only true subject to another very important condition, viz., that the foundation, whether it be floor joists, ceiling joists, or other structural work, is also correct as to both material and workmanship and to the essentials of design. It is only necessary to compare lath and plaster ceilings of well-built old buildings and houses to appreciate what is meant by this statement. This comparison will show, in a very great number of cases, that "just another lath and plaster ceiling down" is not only due to bombing, blast and suction of the plastering, but is aggravated by the same causes acting on the general structure of the roof, walls, partitions, ceiling and floor joists, all of which, if they had been constructed to some reasonable code of design and construction principles, would have been better able to stand up to such causes and protect their weaker brother, lath and plastering.

One outstanding example of jerry construction which causes lath and plaster ceilings to be unstable, through no fault of their materials or workmanship, is that appalling system of construction which permitted 4 in. by 2 in. ceiling joists to span 14 ft., and even more, with an intermediate binder which was practically useless as usually fixed. These joists sagged excessively, twisted, and played havoc with lath and plaster ceilings. It is only necessary to examine the ceilings on 4 in. by 2 in. ceiling joists and those on stiff-floor joists to appreciate the fact that the fault lies much more with the foundation to which lath and plastering is applied than to the materials and workmanship of the plasterers. Thanks to the new L.C.C. by-laws for timber construction, which are followed by many local authorities outside London, this system is no longer possible.

I know that it is very difficult for plastering contractors who were faced with competition during 1919-39 to insist on the general structure of houses being suitable for the application of lath and plastering. But in the post-war decades, when plastering contractors will have very much more work than they will be able to cope with, I am sure they will have the power to stipulate that their good materials and workmanship shall not be damned, nor dubbed unstable, by the wiles of jerry-builders who construct wrongly the foundation of lath and plastering. And although building boards of many varieties by their pre-built sheet construction may not be liable to such statements as "just another building board ceiling down," it should not be overlooked that these boards, which are extensively used in stages 1 and 2 war-damage repairs, are not in many cases being fixed and nailed in accordance with the manufacturers' pre-war instructions. This will, I predict, cause serious issues to be raised when stage 3, or final reconditioning, of houses is commenced, and it will be found that the owners' professional advisers will condemn work which will not only cause financial loss to the nation, but inconvenience to house-owners who will have to face another "ceiling down" so that a proper "ceiling can be put up."

R. V. BOUGHTON, A.I.Struct.E.
Streatham, S.W.16.

[other correspondence held over.—Ed.]

## OBITUARY

### OSWALD HEALING, P.P.S.I.

MR. JOHN M. THEOBALD writes :—

By the passing of Oswald Healing after a short illness the quantity surveying profession has lost one of its outstanding members. I knew him, I think I may say intimately, for over a quarter of a century, and I appreciate the opportunity you, sir, have afforded me of paying this tribute to his memory.

He was one of those men whose life was his profession, and it was indeed a full one. He was a quantity surveyor in the broadest sense of the term, whether in connection with ordinary building works, civil engineering contracts, or in the legal side of our profession; his opinion carried great weight, and deservedly, because no man worked more unsparingly in the interests of his profession and the building industry as a whole than he.

If, however, I were asked which quality I most admired in him it would have been his ability as a negotiator. Once convinced that his considered opinion was the right one, nothing on earth would make him change it. In that soft—and, dare I say provocative?—voice of his he would counter every point brought against him with the ability of a practised lawyer. If I had to suggest a fitting epitaph for Oswald Healing it would be *Suaviter in modo, fortiter in re.*

He received his early professional training with Messrs. Corderoy and Selby, whose staff he joined in 1892, becoming a partner in the firm when it was reconstructed as George Corderoy and Co. in 1919. Under its old, as well as its new, title, it had always made a special feature of surveying for heavy engineering contracts as well as for ordinary building work, and, at the invitation of the President of the Institution of Civil Engineers, he served on its committee entrusted with the task of preparing a standard system of measurement for engineering quantities.

He became a Member of the Council of the Chartered Surveyors' Institution in 1933, and its President six years later. He was a member of its Quantity Surveyors' Committee for 16 years, and its chairman from 1931 to 1933.

Always keenly interested in professional education, he was chairman of the Education Committee at the time of the reorganisation of the Institution's examinations, and in January of this year was elected President of the College of Estate Management.

To mention but a few of his wider activities, he was a member of Mr. Justice Uthwatt's Committee on the principles of assessment of war damage, and chairman of the Special Sub-committee appointed by Lord Reith to prepare a Standard Schedule of Prices for building works. He died, as would have been his wish, in harness. The quantity surveying profession owes much—very much—to Oswald Healing.

## PREFABRICATION

### A B.I.N.C. REPORT.

THE Building Industries National Council has published a report on "Prefabrication," which is a "statement of the minimum considerations to be taken into account when discussing the subject, whether from the point of view of general industrial and social policy or of technical detail," and it stresses the "need to secure the stability of the building industry as part of a balanced national economy with a minimum of dislocation during the period of immediate post-war emergency."

The report, while recognising that special measures must be adopted in the present emergency, points out the dangers of basing post-war building on the criterion of speed alone, and of the encroachments of sub-standard prefabricated types in the sphere of traditional building.

"The building man-power of the country," it is stated, "is a national asset, with a long tradition of development and involving systems of apprenticeship and standards of security. In the interests of the national economy, any emergency measure, such as the adoption of prefabrication, should interfere as little as possible with the immediate employment of building crafts and with their position in the national economy hereafter.

"For the first year or so before a reasonable amount of demobilisation takes place, traditional building methods may not satisfy the early post-war requirements. But the need for substitutes must be viewed in relation to the ability of traditional building to satisfy general requirements. The report outlines a scheme which in making the maximum use of standardisation and providing the benefits of mass-produced components and planning facilities to as wide a range of operations as possible, would add to the capacity of the traditional industry. It is just as important to reach higher outputs by new methods as it is to seek entirely new methods."

The industry welcomes all forms of technical progress, it is stated, and, provided there are adequate safeguards, the public interest should be served. It is recommended that these considerations should be converted into a precise plan in which the knowledge and experience of the industry are joined.

In introducing the report on November 23, MR. LESLIE WALLIS, J.P., President, B.I.N.C., said that the industry as represented by B.I.N.C., would welcome technical progress, but it viewed with concern the attempt by the Government to impose new methods and types of buildings which had not passed the test of time. This was as much in the interest of the public as of the industry. If special measures were required to meet the present emergency they should as far as possible be made within the building industry. In no circumstances should new measures be decided upon without consulting the industry.

# ORGANISATION AND MANAGEMENT IN THE BUILDING INDUSTRY—III

## UNIVERSITY EXTENSION LECTURE BY MR. T. P. BENNETT

THE third and final University of London Extension Lecture (in conjunction with the Institute of Industrial Administration) on "The Principles of Organisation and Management in the Building Industry," was given by MR. T. P. BENNETT, C.B.E., F.R.I.B.A., Hon. F.I.O.B., on Tuesday, at the London School of Hygiene, W.C.1. The subject-matter of this talk was "Division of the Contract Between Head Office and Site; Site Organisation; and Control of Time and Cost." Following is the full text of the lecture :—

### THE KEY—THE ARCHITECT.

The architect is obviously the key to the successful operation of this machine. He must start with a design well conceived as an artistic whole, carefully planned, and possessing all the other factors of an artistic entity. From the practical point of view this must represent the whole of the requirements of the client, and, therefore, the questionnaire, finally resulting in the summary of requirements, is introduced.

The architect has many operations to go through before his final working drawings can be handed to the builder in such a complete form that the job can be well organised from start to finish and a proper contract can be drawn up. A reminder or chart for the architect's operation is necessary. A subsidiary chart in this operation is needed for the survey of the site, so that every part of the land or property upon which the new building is to be erected may be properly checked to avoid any possible alteration at a later date. The land survey chart is the next necessity.

The building machine then comes into operation, and the building operation will follow either the sequence "Building Owner—Builder—Repairs," or those outlined in Chart 1 and Chart 2. With the simple type of building operation, the repair, or the building purchased ready complete, there is little need for comment. As soon as the contract becomes complex it is obvious that a machine must be brought into existence which will make sure that there are no hitches, alterations or uncertainties. The basis of this contract is :—

(*a*) Good drawings; (*b*) complete specification; (*c*) complete bill of quantities; and (*d*) complete specification of the work of all the sub-contractors who are to be employed.

**Form of Contract.**—The building is controlled by a contract entered into between the building owner and the building contractor, the architect being quoted in various parts of the contract as the controlling or supervising technical officer. There are three main forms of contract :—

(*a*) Lump sum.
(*b*) Prime cost.
(*c*) Estimated costs, fee and bonus.

**Lump Sum—How Obtained.**—The lump sum building contract is obtained in small work by issuing a drawing and/or specification which describes the work to be done, the builders being left to take out such quantities as they need to compile their prices, and sending in a lump sum for which they are prepared to carry out the work shown on the drawings and described in the specification. The completeness of the lump sum depends upon completeness and accuracy of the documents provided.

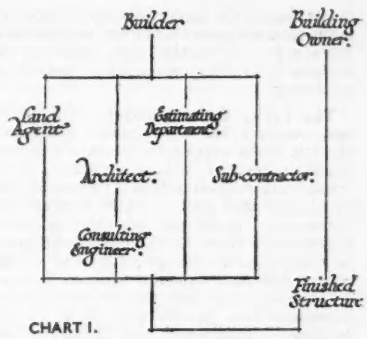


CHART 1.

If these documents are complete and no alterations are made during the course of the contract, and no unforeseen contingencies arise, the final cost of the work should be equal to the lump sum tender. There is a moral obligation to give the contract to the lowest tenderer. In larger contracts a complete bill of quantities is issued, but the price is affected substantially by the amount of the sub-contracts, which are included in the main contract in the form of p.c. prices—*i.e.*, prime cost prices. These are not really prime cost prices at all, but should represent the tendered amount of the sub-contracts, as has been previously described. In a great many cases the tenders for the sub-con-

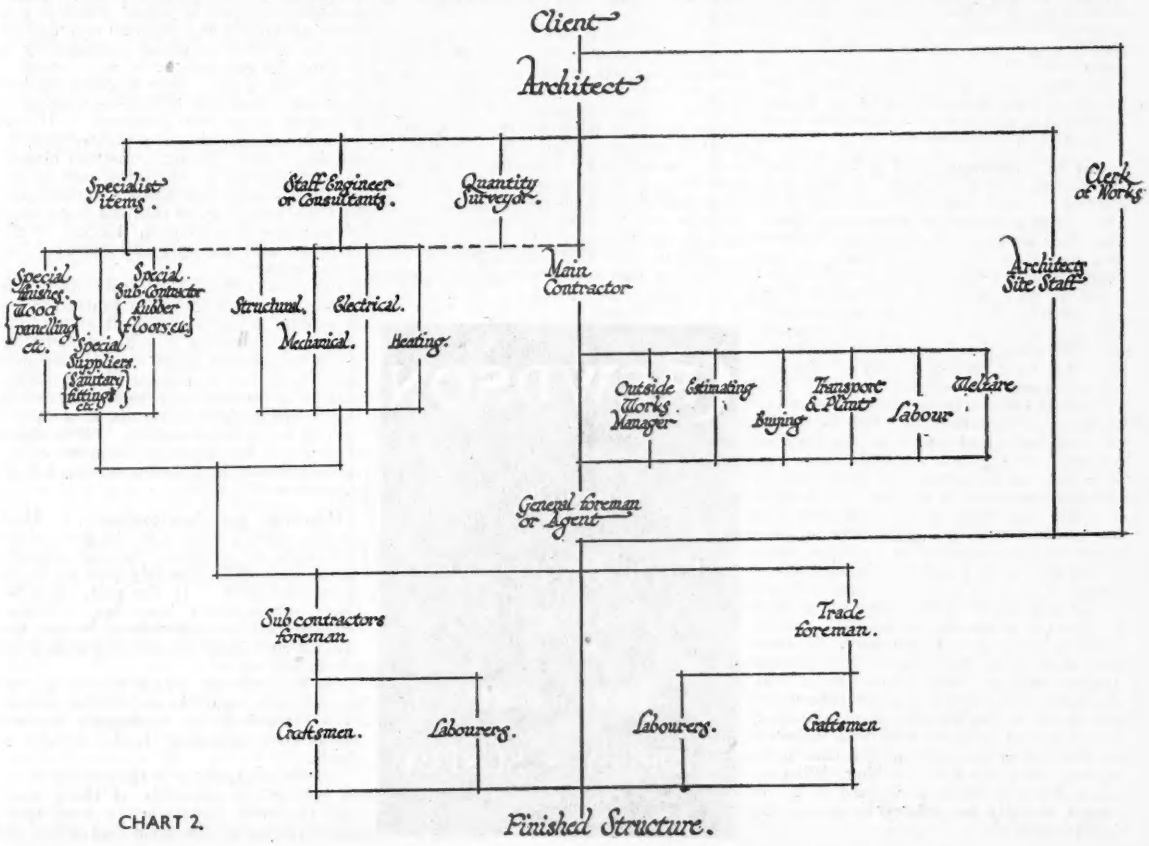


CHART 2.

tracts have not been obtained before the main contract goes to tender, and in these cases a portion of the work only may be subjected to this competitive system of tendering.

**The Prime Cost Contract.**—The prime cost contract has been looked upon, and rightly, with suspicion. It is a contract based upon the actual expenditure on labour and materials, plus a percentage for overheads and profit. Under these circumstances it is not possible to know beforehand, other than through the quantity surveyor's estimate, the cost of the work, and this type of contract is open to the objection that the greater the expenditure the greater the profit of the builder. This leads to a feeling of unsoundness in the working arrangements of all parties, and to-day "prime cost contracts" are limited to those works which :—

(*a*) Cannot be drawn or specified; (*b*) those contracts where the working conditions are so difficult that it is virtually impossible to estimate the cost of the work beforehand.

**Estimated Cost and Bonus.**—In order to meet some of the objections to the prime cost contract, a contract has been evolved which depends for its basis upon the estimated cost of the work prepared by the quantity surveyor, and agreed by the builder. This is signed as the contract price of the work; the work is then carried out on a prime cost basis—that is, charged as the cost of time and material employed, and the builder is paid a fee plus a bonus equal to a percentage, generally 50 per cent. of any savings which may be effected offset by any losses. This forms an inducement to economy to the builder, and such contracts have been employed with advantage in a number of works. It is obvious that the success of this contract depends entirely upon the accuracy with which the builder and the quantity surveyor arrive at their basic price.

In view of the larger proportion of subcontracts, this method should be closely examined to see whether it cannot be more universally applied.

**List of Tenderers.** — The list of tenderers has been the subject of some discussion in recent years, because many local authorities consider that they must advertise their tenders and permit any builder and contractor to submit a tender. The effect of this procedure is to enable contractors, who have in their minds very substantially different grades of construction and finish, to tender on the contract, and, therefore, bearing in mind this probable difference in the quality of the intended work, the contract generally goes to the builder who is working to the lowest standard of construction, which he thinks the architect and clerk of works will accept. The system of public tendering, therefore, while on the face of it opening the public contract to all who wish to give a price, has very grave difficulties in execution. It is not practicable so precisely to define quality, in buildings, that a similar building will be obtained quite irrespective of the goodwill of the builder; in the majority of works under the control of private architects a selected list of builders is used. This practice is more and more being followed by Government Departments and local authorities, so that the main object of the builder is to carry out work of sufficiently good standard over a period to enable him to be included on the list of builders for the county or borough in which he is working. Where a selected list of builders is used it is, of course, morally compulsory to accept the lowest tender.

The public lists of builders should be revised every one to three years, possibly providing for a third of the lists being changed each triennial period. Such lists should be graded for size of firm.

## COMPETITIVE TENDERING.

In recent years there has been some objection to the system of competitive tendering on the part of the builders and contractors, who feel that this fierce competition of money tends to lower the standard of work and prevents the builder from giving to the client a really satisfactory construction. It is difficult to see how really satisfactory alternatives can be secured which will still maintain the efficiency of the industry at a high level. It is obvious that in the case of manufactured articles the competition of other equally keen constructors or makers is secured by comparison with their respective finished products; thus the motor car is compared not only with its rival maker but also with its rivals in other parts of the world. In so far as few buildings are precisely like other buildings, it is not possible in most cases to compare their costs. The cost of the Bank of England cannot be compared with the head office of Lloyds Bank, and, therefore, if there were no competitive tendering the whole industry might become slack in its organisation and uneconomic in its working.

Where competition is based upon accurate information, where the tendering is honest, and where the standing of the builders is similar, there should be no real objection to the lump sum price on competitive tender.

**Sub-contractors.** — The sub-contractors form one of the most difficult elements in this matter of contract making and the provision of information. As has been indicated in the detailed consideration of the elements, they can be employed as follows :—

(*a*) Instructions issued by the architect's own specialist staff or a consulting engineer to prepare the schemes, write a specification and obtain quantities and tenders, using the individual ability and resources of the sub-contractors at an intermediate stage, as previously indicated.

(*b*) Tenders can be obtained on a good specification of requirements and performance, individual firms providing their own schemes and their own prices on comparable basis.

(*c*) The individual sub-contractor who has in the past submitted a scheme without either the guidance of (*a*) or (*b*). This is obviously open to very severe abuse; there is difficulty in determining which is the more favourable contract, and considerable difficulty in ensuring that the work which is supposed to be included in the tender is carried out without extra payment.

(*d*) The work can be fully designed and specified and the general contractor can be allowed to obtain his own sub-contracts with or without a nominated list of names.

Methods (*a*) or (*b*) provide sound tendering; (*c*) is unsound; (*d*), which has been recommended in certain quarters, should not, I consider, become part of the machinery of the building industry because cost will be unduly weighted against quality. A properly completed set of working drawings must presuppose the selection of certain key sub-contracts during their evolution if the best use is to be made of the resources of the individual sub-contractor. At the stage, therefore, at which competitive tenders can be obtained for the steel frame, or in certain cases the reinforced concrete, the heating or the electric light, the lift and its shaft, it is not possible to complete the quantities and go to tender for the main contract. It is also found that in many cases a considerable period of preparation is needed by the sub-contractor if he is to supply his particular part of the building at the right time for inclusion in the programmes of operations of the main contractor. This, therefore, provides an additional reason for the early placing of sub-contracts.

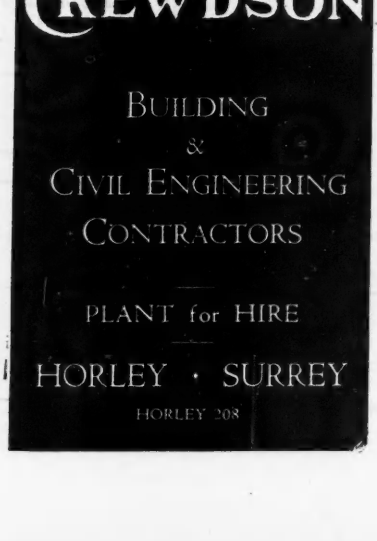
**Legal Machinery for Carrying Sub-contracts.**—The provisional tenders obtained from sub-contractors mean that some suspense machinery is necessary for carrying these sub-contracts on behalf of the building owner until the time at which the main contract is placed, since it produces an untidy and unsound organisation for the building employer permanently to employ the sub-contractor as a separate entity. In practice this suspense method does not present any difficulties if accurate estimates have been prepared. If the estimates of cost are not accurate, then the building owner, having committed himself to contracts for a substantial part of the building, might find himself embarrassed by these contracts, so that the importance of accurate estimating on the part of the architect and the quantity surveyor becomes evident.

One last difficulty presents itself : in certain instances the main contractor has objections to the employment of the individual specialist as a sub-contractor because he does not agree with his financial stability or has a personal like or dislike, and as he carries many legal responsibilities he has a right to a voice in the selection of his sub-contractors. This objection cannot be upheld if the name of the sub-contractor is inserted in the bill of quantities.

**Headings for Sub-contracts.** — Much greater care is needed on the part of the architects in preparing the sub-contracts which they will ultimately pass on to the main contractor. In the past, too often these sub-contracts have been obtained without careful conditions of tender, and the sub-contractor has not had a clear list which sets out :—

(*a*) The services which the main contractor is to supply as part of the contract —*i.e.*, provision of workmen's latrines, scaffolding, unloading facilities, and so forth.

(*b*) The obligations of the sub-contractor to deliver his materials at times which suit the main contractor, to work under the direction of the main contractor, and



to fit in with the main contractor's organisation. Failure to have a proper list of the responsibilities of each party to the eventual sub-contract has led to a considerable amount of confusion on site, and claims on the part of both the sub-contractor and the main contractor.

The architect, therefore, should have a standard form of invitation to tender, which includes :—

(A) A copy of the main contract which is eventually to be placed with the main contractor.

(B) The conditions (*a*) and (*b*) abovementioned.

(C) A space in which the sub-contractor will enter any guarantee of performance which it is part of his obligation to undertake.

**Guarantees.**—The last-mentioned heading, " Guarantees," is of considerable importance. In the past it has been the custom for the sub-contractor to give a guarantee of performance of many portions of his equipment; thus there is usually a guarantee of temperature in heating, a guarantee of volume of air to be passed in ventilation, a guarantee of the performance of lifts, and so forth. These guarantees have been given by the sub-contractor in his tender to the architect, sometimes in the form of an accompanying letter, sometimes as part of the tender. When the sub-contract is eventually accepted by the main contractor it will frequently be found that the guarantee has disappeared in the process, and, while the client considers that he has a case against the combined main contractor and sub-contractor, in fact, this case more often depends upon the goodwill and standing of all parties than it does upon the legal position. This obviously defeats the intention of the guarantee and shows that there is need for the employment of more precise methods of obtaining sub-contract tenders and incorporating them in the main contract. In many contracts binding agreements are missing. Although the main contractor has been made responsible for the work of the sub-contractor, he, in turn, has given no guarantee directly to the building owner. It is obvious that in many cases the guarantee can only be performed if the main contractor has carried out his part of the work correctly—*e.g.*, panel heating may fail, not only because the boiler power or the size of the heating service is insufficient, but because the cork insulation, which is part of the main contractor's work, has been ineffectively carried out. Guarantee, therefore, to be effective, must be jointly given by the sub-contractor and the main contractor, and legal machinery is needed to bring this into effect.

**Sub-contract Forms.** — It is worthy of note that although the industry has increasingly used sub-contracts and the specialist in building work, there has been no agreed and published form of sub-contract accepted both by the architects, the quantity surveyors, and the building industry, and in the great majority of cases the precise contractual relations between the main contractor and the sub-contractor are unknown by the architect unless a dispute arises.

**Disclosure of the Sub-contractors in the Form of Main Tender.**—Where the main contractor is being asked to carry substantial responsibility in the form of a guarantee he should be satisfied with the financial standing and the general working arrangements of the sub-contractor. Where, therefore, tenders have been obtained for sub-contracts before the main request for tender is issued, the name of the selected sub-contractor should be stated in the bill of quantities, and the main contractor, if he has objections, can then raise them before he signs the contract. It is reasonable that if the tenders have not been obtained before the main contract is signed, the main contractor should be asked whether he is prepared to accept the sub-contractor before the latter is finally incorporated in the contract.

**Craft Work which the Builder can Execute in his Own Yard.**—In asking for tenders for work which the builder can execute in his own workshop, or which he may be able to command through his normal contract channels, the main contractor should, as far as possible, be given the opportunity of pricing the schedule as part of his contract, and any sub-contracting required should be carried out by the main contractor with the approval of the architect.

In these cases the architect could well be asked to specify three, four or more firms, any of whom he would be prepared to accept, and leave the main contractor to obtain the tenders and submit the successful name for approval. This should apply to all normal cases of joinery, masonry, brickwork, tiling and roofing, and similar operations. Where a special material is required, as, for example, a special tile or a facing brick, it is reasonable for the architect to select the tile or brick he requires and ask the contractor for a tender, using the selected material.

**Objection of Contractors to Sub-contracts.**—The main contractor recently has been objecting to the very large proportion of his contracts which is subject to sub-contracts and separate tender, and has pointed out that the work for which he is directly responsible should be increased. While there is much foundation for these comments, it should also be noted that contractors themselves have shown an increasing tendency to sub-let work which they formerly carried out, and thus they have added to this complication of the sub-contract.

**Alterations and Variation Orders.**—Since it is not possible to visualise all contracts flowing through the industry without alteration, a system of variation orders should be used whereby any adjustments of the drawings and specification are recorded in an order to the builder; upon receipt of this order he proceeds with the work, and his price is subsequently adjusted to meet the varied cost. These variation orders are gradually coming into universal use, and, where properly applied, they represent a proper record of the altered cost of the work to the builder and the client. The great difficulty is that alterations to buildings have been far too numerous in the past for the reasons we have discussed, and, therefore, measurement on *pro rata* unit price does not represent the additional cost of this work on the building contract.

If the contract is interrupted by substantial or numerous alterations, it is not difficult to understand how the builder may be paid perfectly legitimately at quite unfair prices to himself if he is charged on a measured bill based upon an evenly flowing contract. The builder therefore claims " extras," sometimes very substantial sums, which do not appear to represent the value of the article obtained compared with the value of the article omitted. If the really serious character of these alterations on the builder's organisation is brought home to all parties, it should be possible to assess the loss of efficiency as a lump sum when the variation order is issued, and thus the variation order should be able to govern legitimate changes and it should be possible to price them on the unit price in the bill of quantities.

**The Contract Let.**—We have followed the structure of the building industry from the date of inception of the projects to the time at which the contract is let and the builder ready to commence work on the site. This represents, therefore, the close of the second stage of the procedure for the creation of a building.

## THE BUILDER'S CONTROLLING ORGANISATION.

The builder's organisation will have to embrace work under a number of different headings. These headings may be subdivided as follows :—

(*a*) The estimating staff; (*b*) the buying staff; (*c*) labour; (*d*) transport; (*e*) site control; and (*f*) accounts.

(*a*) **The Estimating Staff.**—The estimating staff of a builder's organisation are those men who have to keep contact with the cost of work already executed and price the bills of quantities sent in to them by the quantity surveyor and the architect for carrying out new contracts. Upon their skill in estimating depends, on the one hand, the builder's ability to secure the contract, and, on the other, his ability to secure it at a price which will enable him to carry it out and to make a profit. The science of estimating has not hitherto been nearly as exact as it should be, very largely because there has, in my view, been insufficient study of actual costing and insufficient analysis of individual costs when they are obtained. This factor has been largely responsible for wide variation in tender, which is frequently commented upon by the lay public; but there is the other very important factor in estimating, and that is the quality of work which the builder pro-

poses to give, and it is not always possible to get a specification which will precisely indicate quality. Quality in building, to a very large extent, depends upon the type of firm employed, the type of workmen employed by those firms, and the standard of supervision which is exercised by the architect and the clerk of works. Specification and supervision alone, however, are not sufficient to secure a given standard, and the builder must be a willing partner in this effort to secure a good quality of building.

It is evident from these facts that the builder can submit a low estimate and have every intention of giving a low standard of construction, although it may just pass muster for the purpose intended. It is equally obvious that, unless the work is clearly drawn and specified, alterations may enable the builder to make claims at a later date which will counteract any low tendering which he may have done to secure the contract. The estimating side of the builder's work is therefore of great importance, not only from his own angle, but also from that of the client and the architect, who have to obtain as the result of that tender a high quality of work.

(*b*) **Buying Organisation.**—The next important portion of the builder's organisation is that devoted to the buying of materials, and contractors pride themselves upon the ability of this side of their work. In the smaller firms the builder himself will frequently act as his own buyer; in larger firms the buying department contains a substantial number of people. There are the usual trade discounts available in the industry, sometimes stepped up according to the total volume of material consumed throughout the 12 months. In other cases Cartels have in recent years governed the prices of staple materials like cement, steel, brick and certain other articles, and it is impossible, at any rate in principle, for buyers, good or bad, to vary these prices. In practice, buying and delivery instructions are frequently most inefficient, and attempts to control the amount of monthly accounts often lead to extreme disorganisation on the site.

The buying section of the builder's organisation also deals with the purchase or hiring of plant, and in recent years the hiring of plant has extended rather substantially, partly because some of the plant at least is very costly to maintain, as well as to purchase, and is not continually in use by any one builder. Plant schedules, the watch needed to see that plant is fully employed and properly maintained, and general supervision over plant matters become an important part of the large builder's organisation.

(*c*) **Site Control.**—As has been indicated already, the actual supervision of the work on the contract is in the hands of an agent or foreman, but where building organisation is large there are senior works engineers or works managers who visit all the sites on which the builder has work in progress and deal with the major problems of organisation. These men become extremely important factors in the builder's working arrangements, and are normally very highly paid and highly skilled members of his staff. The works manager will have under his control the sub-sections of the head office organisation which deal with labour and all the questions relating to labour, and those relating to the transport of materials.

The complications of labour in recent years have been great. It has been necessary to forecast the number of men and their particular trade for substantial periods ahead, make application to the Employment Exchange, and to see that proper arrangements have been made for billets, or, alternatively, for sleeping on sites where no ordinary accommodation is available. It may well be that this problem will remain when the war is over owing to the large amount of work which has to be carried out in blitzed cities. Very much more attention has been paid to the conditions under which the men work in recent years, and this will lead to the study of welfare on building sites.

(*d*) **Transport.**—Whether the transport is dealt with by the works manager or by a separate transport manager depends upon the size of the operation, but in carrying out works, whether they are in cities or outside, it is necessary to build up a clear picture of the way in which material is to be delivered to the site. In country districts the size of the railway goods yard has to be examined, the possible input of wagons per day, loading arrangements which are made at depots, and the road transport which is necessary either to convey material from works to work or to convey it from railway yard to the site of the contract. Railway companies should always be compelled to deal with "door to door" delivery. There are, of course, unquestionable advantages in road transport in building, as there are in every other industry, mainly because the material is handled so many less times. Once loaded in the lorry it proceeds directly to the precise spot in the work in which it is to be used; and many organisers spend considerable time endeavouring to ensure that the material is taken straight to the spot on which it is required and is handled only once before it is put into the building.

Increased wages and labour scarcity may in the future have far-reaching effect on transport.

BILTYN
TRADE MARK
BUILT-IN
FIXTURES LTD.
*LOOK FORWARD*
*to a very early resumption of the manufacture of high class built-in fitments*
PARK ROYAL JOINERY WORKS
STANDARD RD. WILLESDEN. N.W.10
WILLESDEN 5011-2

(*e*) **The Accounts Department.**—Finally, in the builder's organisation the accounts department deals with the cost of the material and labour, as shown by site returns; and the rendering of accounts to architect or client for the work which has been carried out. The extreme complication of building accounts is rarely realised. As an example we can take a wages sheet which contains a column for entering all the different costs which go to make a week's wages for an ordinary craftsman. To most of us it is astonishing to see the size of this document. With allowances for "wet" time, for "dirty" money, for overtime at varying rates, for time worked, for periods worked under the Guaranteed Week, for periods of idle time under the Guaranteed Week, and for allowances for insurance and income-tax, the compilation of the pay packet has become an amazing work of art; and it is small wonder that the workman cannot at times understand how his pay is made up to the sum which he finally receives. And there is a certain measure of dissatisfaction owing to this difficulty of a simple wage calculation.

The rendering of accounts to the architect and client is another large part of the work of the accounts department, and it has become more and more the custom on the completion of a contract for the builder to render a claim for certain contingencies which he maintains he could not foresee, and which have affected the cost of the contract. Many of these claims are quite just, and they arise from the absence of decisive instructions, which have been the subject of earlier sections of these lectures. Others almost amount to sharp practice, and are the pernicious side of building accounts; they are a great drawback to the confidence which the public ought to have in its building organisation and, as I have indicated already, very serious efforts must be made by the whole industry to reduce this side of building costs to an absolute minimum.

## THE EXECUTION OF THE CONTRACT.

As soon as the contract is let, the builder enters the site, and sets up a site office, and in certain cases other site buildings, such as stores and canteens. The architect likewise has to establish a site organisation. The architect's responsibility only includes such supervision as can be carried out by personal visits to the site, and in the meantime the job is controlled, from the client's point of view, by the clerk of works. Owing to the complication of larger contracts, it has become more and more the practice for the architect to have a site representative who is able to make local decisions, settle points of detail, and decide upon certain matters of texture and colour, in order to avoid delay on the contract. The architect's sub-division of work between office and site is, therefore, simple. The office produces the whole of the information and the site control sees that the building is carried out in accordance with the drawings, and that the detailed decisions which can only be made on the site are made to the architect's requirements by the clerk of works, or the resident architect. All sites for contracts of any magnitude should have a resident architect.

**Progress Reports.**—At the commencement of the contract, every site should have a programme for the execution of the work. Published by the Ministry of Works are a number of programme and progress charts which illustrate the way in which the building operation can be forecast for different types of jobs. There are two main factors to be provided :—

(*a*) The length of the individual opera-

tion; and (*b*) the time at which it should start.

These are compared with :—

(*c*) The date at which it actually started; and (*d*) the time it is actually taking.

During the execution of the work, therefore, watch can be kept upon the two factors, time occupied, percentage of operation carried out. On the most complete chart time is given for :—

(*a*) The period of production of the drawings.

(*b*) The ordering and delivery of materials.

(*c*) Time for executing the work.

This chart will enable the builder to know that his operations can be continuous once work is commenced on the site, and will enable architect and builder to forecast a date for completion.

**The Preparation of Programme and Progress Schedules and the Labour Graph.**—It is a remarkable thing that in spite of the complication of building operations as they are carried out to-day, and the difficulty of co-ordinating the two prime factors, the delivery of materials and the provision of labour, the graph and the progress chart have not been universally accepted by the industry. During the war, with a very large amount of work in the field of civil engineering and in the hands of perhaps the larger and more far-seeing members of the industry, the programme and progress schedule has experienced very substantial development. It is more widely understood and more widely used to-day than ever before; but the fact remains that a great many building works are still carried out in a day-to-day manner with the most haphazard delivery of materials and labour which can be imagined. This arises in part because of the long period during which the industry contained a large number of unemployed and a big surplus of materials, but it would still seem to have been almost impossible for building contracts to be run without a very much clearer knowledge than normally possessed of the length and magnitude of individual operations. It is certain that in a post-war world a clear-cut idea of the time and size of these operations will be a necessity, and that a very much more accurate forecast will be needed of the quantity of materials required, the time at which they should be delivered to the site, and the amount and incidence of the labour force.

In connection with labour, certain factors have been developed as the basis of statistical returns, which show that a normal operative will produce upwards of £50 sterling of work per man-month. This varies with the amount of machinery which can be employed and the nature of the work, and the rising cost of building tends to raise this figure. Nevertheless, £50-£60 still remains a very good basis of calculation for the work required on normal buildings. On aerodrome construction the work may rise to as much as £250 per man-month because of the universal and extensive employment of machinery.

The mere setting down of the sequence of operations on a progress chart is sufficient in most cases to bring to light many gaps, and to show the necessity for taking certain steps well ahead of the time when the work is required to fill in these gaps. Accurate checking of the progress of the work against the programme date indicates where the work is falling behind its schedule; and in very many cases enables adequate and important steps to be taken to make up for the time lost.

A good programme chart is also a very great advantage to the sub-contractors, to enable them to organise work at their factories and to arrange delivery to the site so that they can maintain a steady output on the one hand and avoid congestion of their work on the other. With a tight labour force—that is, entire absence of unemployed, it also enables the builder to forecast well ahead the number of men he will need on any given date to carry out the required operations. Certain people have endeavoured to extend this progress chart to a more complicated stage and to produce a gang chart which will show the way in which each group of men are to be employed at any given period of the contract. Considerable knowledge of individual operations is needed before the gang chart can be conducted, and in most cases it is too complicated for general use.

[*This completes the three lectures. A report of the discussion which followed the third lecture will be given in our next issue. Lectures* 1 *and* 2 *were printed in full in our issues for November* 17 *and* 24. *The statistics and graph published with the second lecture were by courtesy of the Ministry of Works.*—ED.]

## WAR DAMAGE TO HISTORICAL BUILDINGS

A NUMBER of buildings of special architectural or historic importance have suffered damage in the air raids on this country. The question of their treatment under the War Damage Act has formed the subject of discussion between the War Damage Commission and other appropriate bodies, and the general policy to be observed is now set out in a new Direction which the Treasury has issued under Section 20 (1) of the War Damage Act.

Under this Direction it is laid down that, in the public interest, payments in respect of war damage to buildings which the Commission are satisfied are of special architectural or historic importance shall be of such kind as to secure, so far as possible, the preservation of the character of such buildings. Accordingly, the Commission is authorised, in suitable cases, to make a cost-of-works payment for the repair of the building where this can be done without detracting from its character, even though it might, technically, be regarded as a total loss under the provisions of the Act and therefore subject only to a value payment.

Any submission that a building should be dealt with under the terms of this Direction must first be made to the War Damage Commission, which will consult with the Minister of Town and Country Planning (in Scotland, the Secretary of State) and the Minister of Works, and where necessary inquire from the Royal Fine Art Commission (or the Royal Fine Art Commission of Scotland), whether it is prepared to certify that the building is of sufficient merit to justify the application of the Direction. The duty is laid upon the Commission of satisfying itself that all necessary consents have been obtained for the works of making good the war damage, and of ascertaining that the exercise of the powers in any particular case will not involve injustice to any person interested in the question of the kind of payment to be made.

## NEW PROCESS FOR CONCRETE MAKING

A £100,000 COMPANY, registered with the name of Cheecol Processes, Ltd., has taken over the rights of Cheecol Holdings, Ltd., in patented processes for the manufacture of lightweight cellular concrete; the manufacture of concrete products by extrusion; the construction of concrete roads by grouting, and other patents for the improved manufacture of concrete.

By using "Cheecol" cellular concrete it is claimed that the construction of domestic houses need not be held up for lack of skilled labour, as it is possible to build the whole of the structure with unskilled labour, including even the external and internal decoration.

The material can be sawn and nails can be driven into it easily. It is claimed to have good insulation properties and will prevent condensation. We are informed that a number of different types of houses using this company's processes have already been designed, and approved by the Ministry of Works, and at least one county borough will be erecting a prototype house within the next few weeks. In this house the processes will be used in such a manner that no skilled labour will be required for the erection of the shell and roof. The lightweight concrete will be centrally mixed and pumped into place between prefabricated shuttering. It is estimated that one central mixing unit will be able to construct several houses per week, and these units can be multiplied to any extent.

By the patented extrusion process it is claimed that one machine will be capable of producing a mile of building units per day, the size and shape of which can be easily regulated. It is also claimed that concrete made in this manner is considerably improved and it can be made in a range of attractive colours. The only materials required are cement, sand or crushed stone, water and "Cheecol," which are readily available throughout the country.

**British Standards.**

The following has been issued by the B.S.I., 28, Victoria-st., S.W.1. :

Glossary of Terms used in the Gas Industry (B.S. 1,179, 1944). Price 3s. 6d. post free.

# RATES OF WAGES IN THE BUILDING TRADE

## AS AND FROM 1st NOVEMBER, 1944

**(Every endeavour is made to ensure accuracy, but we cannot be responsible for errors)**

| | Crafts-men. | Lab-ourers. | | Crafts-men. | Lab-ourers. | | Crafts-men. | Lab-ourers. | | Crafts-men. | Lab-ourers. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberavon | 2/1 | 1/7½ | Cleveleys | 2/1 | 1/7½ | Isle of Thanet | 1/11 | 1/6½ | Saxmundham | 1/11 | 1/6½ |
| Aberdare | 2/1 | 1/7½ | Clitheroe | 2/1 | 1/7½ | Isle of Wight | 1/11 | 1/6½ | Scarborough | 2/0½ | 1/7½ |
| Abergavenny | 2/1 | 1/7½ | Cobham (Surrey) | 2/0 | 1/7 | Keighley | 2/1 | 1/7½ | Scunthorpe | 2/1 | 1/7½ |
| Abingdon | 1/11½ | 1/6½ | Colchester | 2/0½ | 1/7½ | Kenilworth | 2/1 | 1/7½ | Selby | 2/1 | 1/7½ |
| Accrington | 2/1 | 1/7½ | Colwyn Bay | 2/0 | 1/7 | Kettering M.B. | 2/1 | 1/7½ | Sevenoaks | 1/11½ | 1/6½ |
| Aldeburgh | 1/11 | 1/6½ | Congleton | 2/0½ | 1/7½ | Kidderminster M.B. | 2/0½ | 1/7½ | Sheerness | 1/11 | 1/6½ |
| Aldershot | 1/11½ | 1/6½ | Coventry C.B. | 2/1 | 1/7½ | King's Lynn | 1/11 | 1/6½ | Sheffield | 2/1 | 1/7½ |
| Alfreton U.D. | 2/1 | 1/7½ | Cranbrook | 1/11 | 1/6½ | Kirkham | 2/1 | 1/7½ | Shipley | 2/1 | 1/7½ |
| Alnwick | 2/0½ | 1/7½ | Cranleigh | 1/11 | 1/6½ | Knowle | 2/0½ | 1/7½ | Shoeburyness | 2/0½ | 1/7½ |
| Altrincham | 2/1 | 1/7½ | Crawley (Sussex) | 1/11 | 1/6½ | Lancaster | 2/1 | 1/7½ | Shoreham | 2/0 | 1/7 |
| Amble | 2/0½ | 1/7½ | Crewe | 2/0½ | 1/7½ | Leamington M.B. | 2/1 | 1/7½ | Shrewsbury M.B. | 2/0½ | 1/7½ |
| Amersham | 1/11½ | 1/6½ | Cromer | 1/11 | 1/6½ | Leatherhead | 2/0 | 1/7½ | Sittingbourne | 1/11 | 1/6½ |
| Ammanford | 2/1 | 1/7½ | Crowborough | 1/11 | 1/6½ | Leeds | 2/1 | 1/7½ | Skegness U.D. | 2/0 | 1/7 |
| Andover | 1/11 | 1/6½ | Cuckfield | 1/11 | 1/6½ | Leicester C.B. | 2/1 | 1/7½ | Sleaford U.D. | 1/11½ | 1/6½ |
| Ardingly | 1/11 | 1/6½ | Darlington | 2/1 | 1/7½ | Leighton Buzzard | 1/11½ | 1/6½ | Slough | 2/0 | 1/7 |
| Arundel | 1/11 | 1/6½ | Darwen | 2/1 | 1/7½ | Letchworth | 2/0 | 1/7 | Smethwick C.B. | †2/1 | †1/7½ |
| Ascot | 1/11 | 1/6½ | Daventry M.B. | 1/11½ | 1/6½ | Lewes | 1/11 | 1/6½ | Southampton | 2/0½ | 1/7½ |
| Ashby-de-la-Zouch U.D. | 2/1 | 1/7½ | Deal | 1/11 | 1/6½ | Lichfield M.B. | 2/0 | 1/7 | Southend-on-Sea | 2/0½ | 1/7½ |
| Ashford (Kent) | 1/11 | 1/6½ | Denbigh Town | 2/0 | 1/7 | Lincoln C.B. | 2/1 | 1/7½ | Southport | 2/1 | 1/7½ |
| Ashford (Middlesex) | 2/1 | 1/7½ | Derby C.B. | 2/1 | 1/7½ | Littlehampton | 1/11 | 1/6½ | South Shields | 2/1 | 1/7½ |
| Ashington | 2/0½ | 1/7½ | Devizes | 1/10 | 1/5½ | Liverpool | ‡2/1 | ¶ | Spalding | 1/11 | 1/6½ |
| Ashtead | 2/1 | 1/7½ | Dewsbury | 2/1 | 1/7½ | Llandudno | 2/0 | 1/7 | Stafford M.B. | 2/0½ | 1/7½ |
| Ashton-under-Lyne | 2/1 | 1/7½ | Didcot | 1/11 | 1/6½ | Llanelly | 2/1 | 1/7½ | Staines | 2/0 | 1/7 |
| Aylesbury | 1/11 | 1/6½ | Diss | 1/11 | 1/6½ | London— | | | Stamford M.B. | 2/0 | 1/7 |
| Aylsham | 1/11 | 1/6½ | Doncaster | 2/1 | 1/7½ | 12 m. radius | 2/2½ | 1/8½ | Stevenage | 2/0 | 1/7 |
| Bagshot | 1/11 | 1/6½ | Dorchester | 1/10½ | 1/5½ | 12-15 m. radius | 2/2 | 1/8½ | Stockport | 2/1 | 1/7½ |
| Banbury | 1/11 | 1/6½ | Dorking | 1/11½ | 1/6½ | Long Eaton U.D. | 2/1 | 1/7½ | Stockton-on-Tees | 2/1 | 1/7½ |
| Barnsley | 2/1 | 1/7½ | Dover | 1/11 | 1/6½ | Longton | 2/1 | 1/7½ | Stoke-on-Trent C.B. | 2/1 | 1/7½ |
| Barnstaple | 1/11 | 1/6½ | Dovercourt | 1/11 | 1/6½ | Loughborough M.B. | 2/1 | 1/7½ | Stourbridge M.B. | 2/1 | 1/7½ |
| Barrow-in-Furness | 2/1 | 1/7½ | Driffield | 1/11½ | 1/6½ | Louth M.B. | 1/11½ | 1/6½ | Stourport U.D. | 2/0½ | 1/7½ |
| Barry | 2/1 | 1/7½ | Droitwich M.B. | 2/0½ | 1/7½ | Lowestoft | 1/11 | 1/6½ | Stowmarket | 1/11 | 1/6½ |
| Basingstoke | 1/11 | 1/6½ | Dudley M.B. | 2/1 | 1/7½ | Luton | 2/0½ | 1/7½ | Stratford-on-Avon M.B. | 2/0 | 1/7 |
| Bath | 2/0½ | 1/7½ | Dunstable | 1/11½ | 1/6½ | Macclesfield | 2/0½ | 1/7½ | Stroud | 2/0 | 1/7 |
| Batley | 2/1 | 1/7½ | Durham City | 2/1 | 1/7½ | Maidenhead | 2/0 | 1/7 | Sunderland | 2/1 | 1/7½ |
| Beaconsfield | 1/11½ | 1/6½ | Eastbourne | 2/0 | 1/7 | Maidstone | 1/11½ | 1/6½ | Sutton Coldfield M.B. | 2/1 | 1/7½ |
| Beccles | 1/11 | 1/6½ | E. Glam. (Mon. Val.) | 2/1 | 1/7½ | Malvern U.D. | 1/11½ | 1/6½ | Swaffham | 1/11 | 1/6½ |
| Bedford | 2/0½ | 1/7½ | East Grinstead | 1/11 | 1/6½ | Manchester | 2/1 | 1/7½ | Swanage | 1/11 | 1/6½ |
| Berkhamsted | 1/11 | 1/6½ | Edenbridge | 1/11 | 1/6½ | Manningtree | 1/11 | 1/6½ | Swansea | 2/1 | 1/7½ |
| Berwick | 2/0½ | 1/7½ | Ely | 1/11 | 1/6½ | Mansfield M.B. | 2/1 | 1/7½ | Swindon | 1/11½ | 1/6½ |
| Beverley | 2/1 | 1/7½ | Epping | 2/1 | 1/7½ | March | 1/11 | 1/6½ | Tamworth M.B. | 2/0½ | 1/7½ |
| Bexhill | 1/11½ | 1/6½ | Exeter | 2/0½ | 1/7½ | Margate | 1/11 | 1/6½ | Taunton | 1/11½ | 1/6½ |
| Bideford | 1/11 | 1/6½ | Exmouth | 1/11½ | 1/6½ | Market Harborough | 2/0 | 1/7 | Tenterden | 1/11 | 1/6½ |
| Biggleswade | 1/11 | 1/6½ | Fakenham | 1/11 | 1/6½ | Matlock U.D. | 1/11½ | 1/6½ | Thames Haven | 2/1 | 1/7½ |
| Billericay | 2/0 | 1/7 | Falmouth | 1/11½ | 1/6½ | Melton Constable | 1/11 | 1/6½ | Thetford | 1/11 | 1/6½ |
| Birchington | 1/11 | 1/6½ | Fareham | 2/0 | 1/7 | Melton Mowbray | 2/0 | 1/7 | Thorpe Bay | 2/0½ | 1/7½ |
| Birkenhead | ‡2/1 | ¶ | Faversham | 1/11 | 1/6½ | Merthyr | 2/1 | 1/7½ | Todmorden | 2/1 | 1/7½ |
| Birmingham C.B. | †2/1 | †1/7½ | Felixstowe | 2/0 | 1/7 | Middlesbrough | 2/1 | 1/7½ | Tonbridge | 1/11½ | 1/6½ |
| Bishop Auckland | 2/1 | 1/7½ | Filey | 1/11½ | 1/6½ | Middleton | 2/1 | 1/7½ | Torquay | 2/0½ | 1/7½ |
| Bishop's Stortford | 2/0 | 1/7 | Fleetwood | 2/1 | 1/7½ | Middlewich | 2/0½ | 1/7½ | Totnes | 1/11 | 1/6½ |
| Blackburn | 2/1 | 1/7½ | Flint | 2/1 | 1/7½ | Milford Haven | 1/11½ | 1/6½ | Trowbridge | 1/10 | 1/5½ |
| Blackpool | 2/1 | 1/7½ | Folkestone | 1/11 | 1/6½ | Morecambe | 2/1 | 1/7½ | Truro | 1/10½ | 1/5½ |
| Blyth | 2/1 | 1/7½ | Frinton | 1/11 | 1/6½ | Morley | 2/1 | 1/7½ | Tunbridge Wells | 1/11½ | 1/6½ |
| Bognor Regis | 1/11 | 1/6½ | Frome | 1/10 | 1/5½ | Mundesley | 1/11 | 1/6½ | Uppingham (Salop) | 2/0½ | 1/7½ |
| Bolton | 2/1 | 1/7½ | Gainsborough U.D. | 2/0 | 1/7 | Nantwich | 2/0½ | 1/7½ | Uttoxeter U.D. | 1/11½ | 1/6½ |
| Bournemouth(District) | 2/0 | 1/7 | Gateshead | 2/1 | 1/7½ | Nelson | 2/1 | 1/7½ | Wakefield | 2/1 | 1/7½ |
| Bracknell | 1/11 | 1/6½ | Gillingham (Kent) | 2/0 | 1/7 | Newark-on-Trent | 2/0½ | 1/7½ | Walsall C.B. | 2/1 | 1/7½ |
| Bradford | 2/1 | 1/7½ | Glossop | 2/1 | 1/7½ | Newbury | 1/11 | 1/6½ | Walsden | 2/1 | 1/7½ |
| Bradford-on-Avon | 1/10 | 1/5½ | Gloucester | 2/0½ | 1/7½ | Newcastle-on-Tyne | 2/1 | 1/7½ | Walton-on-Naze | 1/11 | 1/6½ |
| Braintree | 1/11 | 1/6½ | Godalming | 1/11 | 1/6½ | Newcastle-u.-Lyme | 2/1 | 1/7½ | Ware | 2/0½ | 1/7½ |
| Brentwood | 2/0½ | 1/7½ | Goole | 2/1 | 1/7½ | New Forest (District) | 1/11 | 1/6½ | Warminster | 1/10 | 1/5½ |
| Bridgwater | 1/11½ | 1/6½ | Gosport | 2/0½ | 1/7½ | Newmarket | 1/11 | 1/6½ | Warrington | 2/1 | 1/7½ |
| Bridlington | 2/0½ | 1/7½ | Grantham M.B. | 2/0 | 1/7 | Newport, Mon. | 2/1 | 1/7½ | Warwick M.B. | 2/1 | 1/7½ |
| Brighouse | 2/1 | 1/7½ | Gravesend | 2/0½ | 1/7½ | Newport Pagnell | 1/11 | 1/6½ | Wellington R.D. | 2/0½ | 1/7½ |
| Brighton | 2/0 | 1/7 | Great Yarmouth | 1/11 | 1/6½ | Northampton C.B. | 2/1 | 1/7½ | Welwyn | 2/0 | 1/7 |
| Brfstol | 2/1 | 1/7½ | Grimsby | 2/1 | 1/7½ | Norwich | 2/1 | 1/7½ | Welwyn Gar. City | 2/1 | 1/7½ |
| Broadstairs | 1/11 | 1/6½ | Guildford | 1/11 | 1/6½ | Nottingham C.B. | 2/1 | 1/7½ | Wells (Norfolk) | 1/11 | 1/6½ |
| Bromsgrove U.D. | 2/0½ | 1/7½ | Guilsborough | 1/11½ | 1/6½ | Nuneaton M.B. | 2/1 | 1/7½ | West Bromwich C.B. | 2/1 | 1/7½ |
| Buckley | 2/1 | 1/7½ | Halifax | 2/1 | 1/7½ | Oakham U.D. | 1/11½ | 1/6½ | Westcliff-on-Sea | 2/0½ | 1/7½ |
| Bungay | 1/11 | 1/6½ | Hanley | 2/1 | 1/7½ | Oldham | 2/1 | 1/7½ | Weston-super-Mare | 2/0 | 1/7 |
| Burnham-on-Crouch | 1/11 | 1/6½ | Harpenden | 2/0 | 1/7 | Ormskirk | 2/1 | 1/7½ | Weybridge | 2/0 | 1/7 |
| Burnley | 2/1 | 1/7½ | Harrogate | 2/1 | 1/7½ | Oxford | 2/0½ | 1/7½ | Weymouth | 1/11 | 1/6½ |
| Burslem | 2/1 | 1/7½ | Hartlepools | 2/1 | 1/7½ | Oxted | 1/11½ | 1/6½ | Whitby | 2/0 | 1/7 |
| Burton-on-Trent C.B. | 2/1 | 1/7½ | Harwich | 1/11 | 1/6½ | Paignton | 2/0½ | 1/7½ | Whitstable | 1/11 | 1/6½ |
| Bury | 2/1 | 1/7½ | Haslemere | 1/11 | 1/6½ | Peterborough (Borough) | 2/0½ | 1/7½ | Widnes | 2/1 | 1/7½ |
| Bury St. Edmunds | 1/11 | 1/6½ | Hastings | 1/11 | 1/6½ | Plymouth | 2/1 | 1/7½ | Wigan | 2/1 | 1/7½ |
| Buxton | 2/0½ | 1/7½ | Hatfield | 2/0½ | 1/7½ | Pontefract | 2/1 | 1/7½ | Wigton | 1/11½ | 1/6½ |
| Byfleet | 1/11½ | 1/6½ | Haywards Heath | 1/11 | 1/6½ | Pontypridd (District) | 2/1 | 1/7½ | Willington | 2/1 | 1/7½ |
| Cambridge | 2/1 | 1/7½ | Hednesford | 2/0½ | 1/7½ | Port Talbot | 2/1 | 1/7½ | Wilmslow | 2/1 | 1/7½ |
| Canterbury | 1/11 | 1/6½ | Hemel Hempstead | 2/0 | 1/7 | Portsmouth | 2/0½ | 1/7½ | Winchester | 1/11½ | 1/6½ |
| Cardiff | 2/1 | 1/7½ | Henley-on-Thames | 1/11 | 1/6½ | Preston | 2/1 | 1/7½ | Windermere | 1/11½ | 1/6½ |
| Carlisle | 2/1 | 1/7½ | Hereford | 1/11 | 1/6½ | Pulborough | 1/11 | 1/6½ | Windsor | 2/0 | 1/7 |
| Carnforth | 2/1 | 1/7½ | Herne Bay | 1/11 | 1/6½ | Ramsgate | 1/11 | 1/6½ | Wisbech | 1/11 | 1/6½ |
| Castleford | 2/1 | 1/7½ | Hertford | 2/0½ | 1/7½ | Reading | 2/0½ | 1/7½ | Witham | 1/11 | 1/6½ |
| Caterham | 2/1 | 1/7½ | Heysham | 2/1 | 1/7½ | Redditch U.D. | 2/0½ | 1/7½ | Woking (District) | 1/11½ | 1/6½ |
| Chard | 1/10 | 1/5½ | Hitchin | 2/0 | 1/7 | Redhill | 1/11½ | 1/6½ | Wokingham | 1/11 | 1/6½ |
| Chatham | 2/0 | 1/7 | Hoddesdon | 2/0½ | 1/7½ | Ripon | 1/11½ | 1/6½ | Wolverhampton C.B. | 2/1 | 1/7½ |
| Chelmsford | 2/0½ | 1/7½ | Holt (Norfolk) | 1/11 | 1/6½ | Rochdale | 2/1 | 1/7½ | Woodbridge | 1/11 | 1/6½ |
| Cheltenham | 2/0 | 1/7 | Horley | 1/11 | 1/6½ | Rochester | 2/0 | 1/7 | Worcester C.B. | 2/0½ | 1/7½ |
| Chepstow | 2/0½ | 1/7½ | Horsham | 1/11 | 1/6½ | Rugby M.B. | 2/1 | 1/7½ | Workington | 1/11½ | 1/6½ |
| Chertsey | 2/0 | 1/7 | Horwich | 2/1 | 1/7½ | St. Albans | 2/0½ | 1/7½ | Worksop | 2/0½ | 1/7½ |
| Chester | 2/1 | 1/7½ | Huddersfield | 2/1 | 1/7½ | St. Helens | 2/1 | 1/7½ | Worthing | 1/11 | 1/6½ |
| Chesterfield M.B. | 2/1 | 1/7½ | Hull | 2/1 | 1/7½ | St. Neots | 1/11 | 1/6½ | Wrexham | 2/0½ | 1/7½ |
| Chichester | 1/11 | 1/6½ | Hunstanton | 1/11 | 1/6½ | Saffron Walden | 1/11 | 1/6½ | Wroxham | 1/11 | 1/6½ |
| Chorley | 2/1 | 1/7½ | Huntingdon | 1/11 | 1/6½ | Salisbury City | 1/10½ | 1/5½ | Wycombe | 2/0 | 1/7 |
| Cirencester | 1/10½ | 1/5½ | Ilfracombe | 1/11 | 1/6½ | Salisbury Plain | 1/11 | 1/6½ | Wymondham | 1/11 | 1/6½ |
| Clacton | 1/11 | 1/6½ | Ingatestone | 1/11½ | 1/6½ | Sawbridgeworth | 1/11½ | 1/6½ | Yeovil | 1/11½ | 1/6½ |
| | | | Ipswich | 2/0½ | 1/7½ | | | | York | 2/1 | 1/7½ |

† Plus 2d. per working day. ‡ Plasterers 2/1½. ¶ Tradesmen's Labourers, 1/7½. Navvies and General Labourers, 1/6½.
§ Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/– per week or 4d. per day Tool Money.

NOTE.—Carpenters, Joiners and Plumbers in all Towns and Districts (other than Birkenhead and Liverpool) receive 2d. per day Tool Allowances.

WOMEN'S RATES.—In all districts throughout the country the basic rate of wages for women engaged on craft processes is 1/6½ per hour after the conclusion of a probationary period of three months. During the probationary period the rate of wages is first month 1/0½ per hour, second month 1/2½ per hour, and third month 1/4½ per hour. For all women carrying out work other than on craft processes, 1/3 per hour.

For Building Trade Wages in Scotland, see page 442.

# PRICES CURRENT OF MATERIALS*

**NOTE.—These prices apply to large quantities of materials at works at London stations, or site, in London area as stated. Prices for smaller quantities ex merchant's warehouse will of course be higher. Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. The prices of soft woods are for cash on delivery.**

## BRICKS, &c.

| | £ s. d. |
|---|---|
| First Hard Stocks | 4 17 0 |
| Second Hard Stocks | 4 10 0 |
| Mild Stocks | 3 17 0 |
| Single Rough Stocks | 3 11 0 |
| Common Stocks | 3 1 6 |

All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job. *In addition*, there will be the *Levy* under the Bricks (Charges) Order, 1942, of 3s. per 1,000.

| 2½ in. Phorpres. A discount of 6d. 1,000 only monthly account. | Site in London Rated Area, per 1,000 s. d. | London Stations of Thames per 1,000 s. d. |
|---|---|---|
| Pressed | 59 3 | 69 3 |
| Keyed | 61 3 | 71 3 |
| Single Bullnose | 79 3 | 89 3 |
| Rustics | 79 3 | 89 3 |
| Whites | 79 9 | 89 3 |

| | £ s. d. |
|---|---|
| Best blue Pressed Staffs. (London Stns.) | 11 14 0 |
| Do. Bullnose (London Stns.) | 12 4 0 |
| Blue Wire Cuts (London Stns.) | 10 11 6 |

Best Stourbridge Fire Brick (London Stns.) :—

| £ s. d. | £ s. d. |
|---|---|
| 2½ in. ....10 2 0 | 3 in. 12 2 0 |

GLAZED BRICKS (London Stns.). Add 12½% to Prices.

| | | | |
|---|---|---|---|
| Best White Ivory and Salt Glazed Stretcher | 30 0 0 | D'ble Str'tch'rs | 38 10 0 |
| | | D'ble Headers | 35 10 0 |
| | | One side&two ends | 39 10 0 |
| Headers | 29 10 0 | Two sides&one end | 40 10 0 |
| Quoins, Bullnose and 4½in. Flats | 36 10 0 | Splays and Squints | 38 0 0 |

Second Quality, £2 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

ADD LEVY ON BRICKS, 3/- per 1,000 except Glazed Bricks.

## PARTITION SLABS.

Delivered London Area.
12 miles radius Charing Cross.
HOLLOW CLAY PARTITION BLOCKS.
London Brick Company.

| Minimum Lorry Loads. Keyed. | s. d. |
|---|---|
| 2" per yd. sup. 120 yds. | 2 9 |
| 2½" " " 110 " | 3 0 |
| 3" " " 100 " | 3 7 |
| 4" " 84 " | 4 1 |

Half blocks *add* 2s. per yard super to above prices.

CLINKER CONCRETE.

| | |
|---|---|
| 2" per yd. sup. .. 2 0 | 3" per yd. sup. .. 2 7 |
| 2½" " " .... 2 4 | 4" " .... 3 7 |

CRANHAM TERRA COTTA.

| | |
|---|---|
| Size 12 x 9 x 2" per yd. super | 2 9 |
| Size 12 x 9 x 2½" " " | 3 0 |
| Size 12 x 9 x 3" " " | 3 7 |
| Size 12 x 9 x 4" " " | 4 1 |

HEMPSTEAD—KEYED TWO SIDES.

| | |
|---|---|
| 12 x 9 x 2" ..... 2 9 | 12 x 9 x 3" ..... 3 7 |
| 12 x 9 x 2½" ..... 3 0 | 12 x 9 x 4" ..... 4 1 |

Per yard super d/d. Free on site, London.

Plus 2d. for smooth one side, and 4d. for smooth both sides.

## STONE.

| | s. d. |
|---|---|
| BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube .... | 3 3½ |
| BEER STONE—RANDOM BLOCK— Free on rail at Seaton Station per ft. cube | 2 3 |
| Delivered free on rail Nine Elms, S.R. " | 3 1½ |
| Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra. | |
| PORTLAND STONE— Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R. .... per ft. cube | 4 7 |
| Do. do. delivered on road waggons as above stations .....per ft. cub. | 4 7 |
| White basebed, 3d. per ft. cube extra. | |
| NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and ½d. beyond 30 ft. | |
| HOPTON-WOOD STONE— F.O.R. Quarries, Wirksworth, Derbyshire. Random blocks from 10ft.and over P.ft.cb. | s. d. 13 2 |
| Sawn two sides | 26 11 |
| Sawn three or four sides | 31 11 |
| YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station, London, | |
| 6 in. sawn two sides landings to sizes (under 30 ft. super) ..... per ft. super | 5 6 |
| 6 in. rubbed two sides, ditto " | 6 3 |
| 3 in. sawn two sides slabs (random sizes) ..... " | 2 7 |
| 2 in. to 2½ in. sawn one side slabs (random sizes) (paving) .... " | 1 8½ |
| 1½ in. to 2 in. ditto ..... " | 1 4½ |
| HARD YORK— Delivered at any Goods Station, London. | |
| Scrappled random blocks . per ft. cube | 6 10 |
| 6 in. sawn two sides landings to sizes (under 40 ft. super) ..... per ft. super | 5 7½ |
| 6 in. rubbed two sides, ditto " | 6 9 |
| 4 in. sawn two sides slabs (random sizes) ..... " | 3 5 |
| 3 in. ditto ditto .... " | 2 8 |
| 2 in. self-faced random flags..per yd. super | 8 9 |

## CAST STONE.

Delivered in London area in full van loads, per ft. cube : Plain, 10s. ; Moulded, 12s. 6d.
Small section cills and copings, 15s.

## SAND.

| | | |
|---|---|---|
| Thames Ballast | 11s. 6d. per yd. | delivered 2 miles radius Padding-ton. |
| Pit Ballast | 10s. 0d. " " | |
| Pit Sand | 12s. 0d. " " | |
| Washed Sand | 13s. 0d. " " | |
| ¾ in. Shingle | 10s. 6d. " " | |
| ¾ in. Broken Brick | 16s. 0d. " " | |
| Pan Breeze | 10s. 0d. " " | |

## CEMENT.

| Best British Portland Cement. Standard Specification, delivered London area | £ s. d. |
|---|---|
| 6 ton loads and upwards site .... per ton | 2 11 0 |
| 1 to 6 tons site | 2 14 0 |
| Alongside Vauxhall in 80-ton lots | 2 8 6 |
| " Ferrocrete " Rapid Hardening Cement— 6 ton loads and upwards site | 2 17 0 |
| 1 to 6 tons site | 3 0 0 |
| Alongside Vauxhall in 80-ton lots | 2 14 6 |
| " Aquacrete " Water Repellent, " Blue Circle " cement, 30s. per ton on ordinary " Blue Circle " prices. | |
| " Colorcrete " Nos. 1 and 2. Coloured rapid Hardening Portland Cement in 6-ton lots | 4 11 0 |
| " Colorcrete " not rapid hardening, according to colour, from £7 to £15 10s. per ton. | |
| " Snowcrete " White Portland Cement (in free paper bags) | 11 5 0 |
| Under one ton per cwt. | 0 13 2 |
| " 417 " Cement (Ultra Rapid Hardening) Delivered Site London Area in 6 ton lots and upwards | 3 11 0 |
| Plus packages at current prices. | |
| Super Cement (Waterproof), bags extra | 4 1 0 |

NOTE.—Jute sacks charged 35s. 6d. nett per ton (20 sacks) for quantities of or exceeding one ton. Less than one ton 1s. 9½d. nett each.
Credit 1s. 6d. nett each when returned in good condition within two weeks.

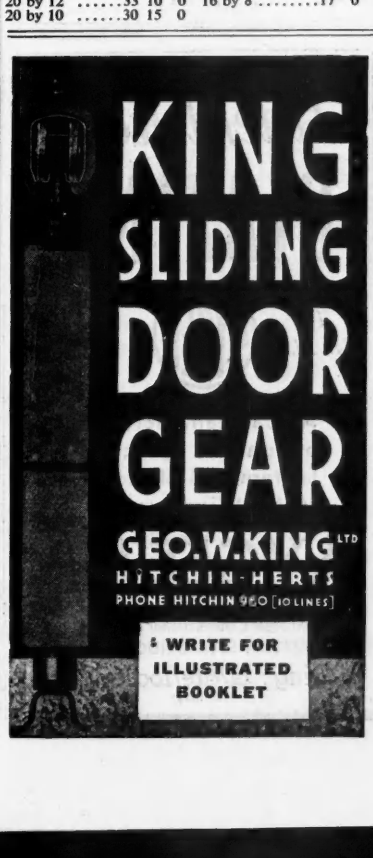
| £ s. d. | £ s. d. |
|---|---|
| Roman Cement 8 10 0 | Keene'sCement,White 7 0 0 |
| Parian Cement 7 0 0 | " " Pink 6 10 0 |

Cementone Colours for cement according to tints, per cwt. from £3 5s. 0d.

## SLATES.

First quality slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station.

| Per 1,000 actual | £ s. d. | | £ s. d. |
|---|---|---|---|
| 24 by 12 | 46 12 6 | 18 by 10 .. | 24 12 6 |
| 22 by 12 | 38 5 0 | 18 by 9 | 23 0 0 |
| 22 by 11 | 34 15 0 | 16 by 10 | 22 0 0 |
| 20 by 12 | 33 10 0 | 16 by 8 | 17 0 0 |
| 20 by 10 | 30 15 0 | | |




## PLASTER.

| | £ s. d. | | £ s. d. |
|---|---|---|---|
| Coarse, Pink .. | 4 2 6 | Sirapite, Coarse | 4 11 6 |
| " White .. | 4 10 0 | " Finish | 4 19 6 |
| Pioneer .... .. | 5 5 0 | | |

Above prices for 4-ton loads and over London Area.

| | | | |
|---|---|---|---|
| Best Ground Blue | | Grey Stone Lime | 3 1 0 |
| Lias Lime .. | 3 7 6 | Chalk Lime .... | 3 1 0 |
| Granite Chippings | 2 0 0 | Hair per cwt. .. | 3 15 0 |

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d. if returned in good condition within three months, carriage paid.
Stourbridge Fireclay in paper bags, £2 12s. 6d., 6-ton lots at railway depot.

## TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons..... Per 1,000 f.o.r. London.

| | £ s. d. |
|---|---|
| Best machine-made tiles from Broseley or Staffordshire district | £7 0 0 |
| Ditto hand-made ditto | 8 6 6 |
| Ornamental ditto | 8 14 0 |
| Hip and valley tiles—Hand-made | 17 0 |
| (per dozen) —Machine-made | 16 0 |

## HARD WOOD.

1 INCH AND UP THICK.

| Average price for prime quality | s. d. | | s. d. | Foot cube. £ s. d. |
|---|---|---|---|---|
| Dry English Wainscot Billets .. | 16 0 | to | 0 18 0 | |
| Dry Slavonian Billet Wainscot .. | 17 0 | to | 1 0 0 | |
| Dry Cuba Mahogany logs .. | 21 0 | to | 1 4 0 | |
| Square-edged Honduras Mahogany | | | | 0 16 6 |
| Log Cut Honduras Mahogany | | | | 0 17 6 |
| American Figured Oak | | | | 0 13 0 |
| American Plain Oak | | | | 0 12 6 |
| Jap, Figured Oak | | | | 0 13 0 |
| Jap, Plain Oak | | | | 0 12 6 |
| Teak | | | | 0 15 6 |
| American Whitewood | | | | 0 12 6 |
| African Whitewood | | | | 0 8 0 |
| African Mahogany | | | | 0 11 0 |
| Australian Walnut | | | | 0 19 0 |
| Australian Silky Oak | | | | 0 12 6 |
| Best Scotch glue ..... per cwt. | | | | 5 0 0 |
| Liquid glue..... per gallon | | | | 1 2 0 |

## SOFT WOOD.

MERCHANTABLE BRITISH COLUMBIAN PINE.

| | Minimum. £ s. d. | Maximum. £ s. d. |
|---|---|---|
| Scantlings in imported sizes | | |
| 2 in. by 3 in. to 4 in. by 11 in. | 47 0 0 | 58 0 0 |

PLANED BOARDS.
PRIME CLEAR BRITISH COLUMBIAN PINE.

| | Per standard. £ s. d. |
|---|---|
| 1 in, by 11 in. } 1 in by 9 in. } | 71 0 0 |
| | Per square. s. d. |
| 1 in. plain edge flooring | 56 3 |
| 1½ in. ditto | 70 6 |
| 1 in. tongued and grooved | 56 3 |
| 1½ in. ditto | 70 6 |

MATCHING.

| | per square. s. d. |
|---|---|
| ⅝ in. | 40 3 |
| ¾ in. | 45 0 |
| 1 in. | 59 0 |

## PLUMBERS' BRASS WORK.

Delivered in London.
M.O.H.

S.D. BIBCOCKS CRUTCH HEAD, FOR IRON
½ in. ¾ in.
33/- 51/- per doz.
TOILET BIB COCKS FOR IRON.
½ in. ¾ in.
60/- 72/- per doz.
S.D. STOP COCKS FOR IRON.

| ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. |
|---|---|---|---|---|---|
| 33/- | 48/- | 86/- | 209/- | 281/- | 456/-per doz. |

S.D.S. COCKS WITH TWO UNIONS FOR LEAD.

| ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. |
|---|---|---|---|---|---|
| 45/- | 77/6 | 123/- | 240/- | 372/- | 624/- per doz. |

DOUBLE NUT BOILER SCREWS.

| ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. |
|---|---|---|---|---|---|
| 5/6 | 6/8 | 11/- | 24/- | 36/- | 56/- per doz. |

HEAVY CROYDON BALL VALVES.

| ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. |
|---|---|---|---|---|
| 72/- | 115/- | 144/- | 288/- | 384/- per doz. |

CAPS AND SCREWS.

| 1½ in. | 1¾ in. | 2 in. | 3 in. | 3½ in. | 4 in. |
|---|---|---|---|---|---|
| 14/- | 18/6 | 25/9 | 45/3 | 64/9 | 71/6 per doz. |

BRASS SLEEVES.

| 1½ in. | 2 in. | 3 in. | 3½in. | 4 in. |
|---|---|---|---|---|
| 10/9 | 13/6 | 25/- | 37/- | 46/- per doz. |

LEAD TRAPS WITH BRASS CLEANING SCREWS.
1½×6 lbs. 1½ × 6 lbs. 2 × 7 lbs. 3 × 7 lbs.

| | | | | |
|---|---|---|---|---|
| Lead P. | 26/- | 34/- | 55/- | 92/- per doz. |
| Lead S. | 34/- | 41/- | 67/- | 115/- per doz. |

SOLDER.—Plumbers', 1/7. Tinmen's, 2/1. Blow pipe 2/6 per lb.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information. Prices are subject to 2½ per cent. cash discount.

PRICES CURRENT OF MATERIALS—(contd.)
See Note at top of preceding page.

## METALS.

JOISTS, GIRDERS, &c., to LONDON STATION PER TON—

| | £ | s. | d. |
|---|---|---|---|
| R.S. Joists, cut and fitted | £24 | 0 | 0 |
| Plain Compound Girders | 26 | 10 | 0 |
| Stanchions | 29 | 0 | 0 |
| In Roof Work | 37 | 10 | 0 |

NOTE.—These prices are for standard pieces and not special pieces of an awkward nature.

MILD STEEL ROUNDS.—To London Stations, per ton.

| Diameter. | £ | s. | d. | Diameter. | £ | s. | d. |
|---|---|---|---|---|---|---|---|
| ¼ in. | 23 | 5 | 0 | ½ in. | 21 | 15 | 0 |
| ⅜ in. | 22 | 15 | 0 | ⅝ in. to 2¾ in. | 21 | 5 | 0 |
| ⅞ in. | 22 | 5 | 0 | | | | |

WROUGHT TUBES AND FITTINGS.
Deliveries from works.
Deliveries from London stock further 2½% gross.

| | Tubes. ½"/6" | Tubulars, and ¾"/6" | Flanges. 19/24" | ¾"/2" | 2½"/6" |
|---|---|---|---|---|---|
| | % | % | % | % | % |
| Light weight | 51½ | — | 47½ | 51 | 57½ |
| Heavy weight | 44 | 44 | 39½ | 41 | 49½ |
| Galv. lightweight | 30 | — | 30 | 30 | 30 |
| Galv. heavyweight | 20 | 20 | 20 | 20 | 20 |

Tubes and tubulars sizes ⅛"/⅜" inclusive, charged extra of 5% less gross.
Fittings. Figs. 25/34 5% less gross discount.
Terms.—Nett cash end of month following date of invoice. Carriage paid on lots of £10 nett value and over.

C.I. HALF-ROUND GUTTERS—London Prices ex Works, per yd. in 6 ft. lengths.

| | Gutters. | Nozzles. | Stop ends. |
|---|---|---|---|
| 3 in. | 1/7 | 1/3½ | 5d. |
| 3½ in. | 1/8½ | 1/5 | 5d. |
| 4 in. | 1/8½ | 1/7½ | 7d. |
| 4½ in. | 1/10 | 1/10 | 8½d. |
| 5 in. | 2/2½ | 2/2 | 9½d. |

O.C. GUTTERS.

| | | | |
|---|---|---|---|
| 3 in. | 2/0½ | 1/8½ | 5½d. |
| 3½ in. | 2/3½ | 1/8½ | 7d. |
| 4 in. | 2/3½ | 1/9½ | 8½d. |
| 4½ in. | 2/5 | 2/2 | 9½d. |
| 5 in. | 2/11 | 2/5 | 11d. |

RAIN WATER PIPES.

| Per yd. in 6 fts. | Pipe. | Bends. Stock angles. | Branches. |
|---|---|---|---|
| 2 in. | 2/5 | 1/7 | 2/4 |
| 2½ in. | 2/6 | 1/9½ | 2/9½ |
| 3 in. | 2/11 | 2/3½ | 3/5 |
| 3½ in. | 3/5½ | 2/8½ | 3/11 |
| 4 in. | 4/0 | 3/3 | 4/9 |

NETT PRICES.
Tonnage allowance—4-ton lots, 5 per cent.
2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices, ex Stock.

| Per yd. in 6 fts. | Pipe. | Bends. | Branches |
|---|---|---|---|
| 2 in. | 3/9½ | 2/7½ | 3/2 |
| 2½ in. | 4/5 | 2/10½ | 3/11½ |
| 3 in. | 4/9 | 3/2 | 4/8½ |
| 3½ in. | 4/10½ | 3/11½ | 5/5½ |
| 4 in. | 5/3½ | 4/5 | 6/3½ |

L.C.C. COATED DRAIN PIPE.

| | cwt. | qr. | lbs. in 9 fts. | per yard. | Bends. | Branches. |
|---|---|---|---|---|---|---|
| 3 in. | 0 | 3 | 14 | 6/0 | 7/3 | 11/6 |
| 4 in. | 1 | 1 | 17 | 8/7 | 8/2 | 14/5 |
| 5 in. | 1 | 2 | 18 | 10/7 | 14/9 | 22/3 |
| 6 in. | 2 | 0 | 1 | 12/9 | 17/0 | 29/8 |

Gaskin, 75/- per cwt.

| | Per ton basis in London. £ | s. | d. |
|---|---|---|---|
| IRON.—Staffordshire Crown, Merchant quality | 20 | 15 | 0 |
| IRON.—Staffordshire Marked Bars | 21 | 10 | 0 |
| Mild Steel Bars | 19 | 15 | 0 |
| Mild Steel Hoops | 21 | 10 | 0 |
| | Ex Merchant's Stock, per ton (two-ton lots). | | |
| Soft Steel Sheets, C.R. and C.A.— | | | |
| 20 gauge | 24 | 17 | 6 |
| 24 gauge | 25 | 2 | 6 |
| 26 gauge | 25 | 17 | 6 |
| Galvanised Corrugated Sheets, 6 ft. to 9 ft.— | | | |
| 20 gauge | 27 | 0 | 0 |
| 24 gauge | 27 | 10 | 0 |
| 26 gauge | 28 | 15 | 0 |
| Galvanised Flat Sheets, C.R. and C.A.— | | | |
| 20 gauge | 28 | 10 | 0 |
| 24 gauge | 29 | 0 | 0 |
| 26 gauge | 30 | 5 | 0 |
| | Per ton £ | s. | d. |
| Cut Nails, 3 in. and up | 28 | 10 | 0 |

ALL NETT.
METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 2s. 4d. to 2s. 7d. per foot super.

## PAINTS, &c.

| | £ | s. | d. |
|---|---|---|---|
| Raw Linseed Oil (5 galls.) per gallon | 0 | 7 | 8 |
| Boiled Linseed Oil (5 galls.) " | 0 | 8 | 0 |
| Genuine Ground English White Lead, per cwt. | 3 | 11 | 9 |
| Genuine White Lead Paint. 14-lb. tins free, per cwt. | 4 | 16 | 6 |
| Genuine Red Lead " | 2 | 18 | 6 |
| Linseed Oil Putty (Kegs extra) " | 1 | 7 | 3 |
| Utility Putty (Packages returnable) " | 1 | 3 | 9 |
| Size, XD quality fkn. | 0 | 4 | 9 |

Turpentine substitute can be obtained and prices vary according to quality from 3/8 gallon upwards.

# BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from November 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

| Grade Classification | A | A1 | A2 | A3 | B | B1 |
|---|---|---|---|---|---|---|
| Craftsmen | 2/2 | 2/1½ | 2/1 | 2/0½ | 2/- | 1/11½ |
| Labourers | 1/8½ | 1/8½ | 1/7½ | 1/7½ | 1/7 | 1/6½ |

| | | | |
|---|---|---|---|
| Aberdeen A | Dumfriesshire A2 | Inverness * | Perthshire A2 |
| Ayrshire A | Dundee A | Inverurie A1 | Peterhead A1 |
| Banff B | Dunoon A | Kincardineshire A2 | Renfrewshire A |
| Berwickshire A2 | East Fife A | Kinross-shire A | Rothesay A |
| Bridge of Allan A | East Lothian A | Lanarkshire A | Roxburghshire A2 |
| Broughty Ferry A | Edinburgh A | Midlothian A | St. Andrews A |
| Clackmannanshire A | Fifeshire A | Monifieth A | Selkirkshire A2 |
| Doune A | Forfarshire A2 | Moray and Nairn B | Stewartry A2 |
| Dunblane A | Glasgow A | Newport A | Stirlingshire A |
| Dumbartonshire A | Greenock A | Peeblesshire A2 | Stornoway A2 |
| Dumfries A1 | Hamilton A | Perth A | Tayport A |
| | | | West Lothian A |

*This town has its own rates: Masons, 1/11; Carpenters, 1/11; Slaters, 1/11; Plumbers, 1/11½; Plasterers, 2/- but 2/0½ is paid owing to the scarcity at present; Painters, 1/11 and Labourers, 1/6½.

The information given in this table is copyright. Rates of wages in England and Wales are given on page 440

## VARNISHES, &c.

| | | Per gallon. £ | s. | d. |
|---|---|---|---|---|
| Oak Varnish | Outside | 0 | 16 | 0 |
| Fine do. | " | 0 | 18 | 0 |
| Fine Copal | " | 1 | 0 | 0 |
| Pale Copal | " | 1 | 2 | 0 |
| Pale Opal Carriage | " | 1 | 6 | 0 |
| Best do. do. | " | 1 | 14 | 0 |
| Floor Varnish | Inside | 1 | 0 | 0 |
| Fine Pale Paper | " | 1 | 0 | 0 |
| Fine Copal Cabinet | " | 1 | 4 | 0 |
| Fine Copal Flatting | " | 1 | 2 | 0 |
| Hard Drying Oak | " | 1 | 0 | 0 |
| Fine Hard Drying Oak | " | 1 | 1 | 6 |
| Fine Copal Varnish | " | 1 | 2 | 6 |
| Pale do. | " | 1 | 14 | 0 |
| Best do. | " | 1 | 4 | 6 |
| Best Japan Gold Size | " | 1 | 14 | 6 |
| Best Black Japan | " | 0 | 12 | 0 |
| Oak and Mahogany Stain (water) | | 0 | 14 | 0 |
| Brunswick Black | | 0 | 9 | 6 |
| Berlin Black | | 0 | 16 | 0 |
| Knotting (patent) | | 0 | 17 | 0 |
| French and Brush Polish | | 0 | 14 | 0 |
| Liquid Dryers in Terebene | | 0 | 11 | 6 |

## LEAD, &c.

| (Delivered in London.) | Per ton. £ | s. | d. |
|---|---|---|---|
| LEAD.—Sheet, English, 4 lb. and up | 38 | 0 | 0 |
| Pipe in coils | 40 | 5 | 0 |
| Soil pipe | 44 | 5 | 0 |
| Compo pipe | 49 | 5 | 0 |

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills.....per ton £18 0 0.


Patent Roof GLAZING

The Hall Mark AYGEE of Craftsmanship

Actual manufacturers of patent glazing. Lantern and Skylights, Metal Windows, etc.

AYGEE LTD.

Metal Window Manufacturers. Light Steel Constructional Engineers.

100 WESTMINSTER BRIDGE RD., S.E.1

Ring: Waterloo 6314 (6 lines)


# THE SCOTTISH BUILDER

## NEW BUILDINGS

**BISHOPBRIGGS.**—Plans in hand for classrooms at public school, for which the architect is William Watt, Albert-st., Motherwell.

**GLASGOW.**—Corporation to carry out alterations and additions at St. Mark's school, Shettleston, for which the architect is John MacNab, 129, Bath-st., Glasgow.—Plans prepared for alterations and extensions, for which the architect is Robert MacLellan, Tollcross, Glasgow.

## Builders in Council.

Mr. J. G. Gray, J.P., President of the National Federation of Building Trades Employers, and Mr. H. C. Harland, President of the London Master Builders' Association, with their respective directors Sir Jonah Walker-Smith, M.P., and Mr. G. H. A. Hughes, are to be the guests of honour of the L.M.B.A. Central Area No. 5 at a luncheon following the Area's annual general meeting in the Zeeta Berkeley Rooms, Putney, on Wednesday, December 6.

## GLASS.

SHEET GLASS, ORDINARY GLAZING QUALITY CUT SIZES.

| | Per ft. super. d. |
|---|---|
| 18 oz. | 3½ |
| 24 oz. Clear or "R" quality | 5 |
| 26 oz. | 6½ |
| 32 oz. | 8½ |

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES.

| Over 500 ft. super of all kinds. | Per ft. |
|---|---|
| Rolled plate, ¼ in. | 6½d. |
| Rough cast double rolled, ⅛ in. | 7½d. |
| Rough cast double rolled, ¼ in. | 7½d. |
| Figured rolled, and Cathedral, white | 6½d. |
| Figured rolled and Cathedral, tinted | 9½d. |
| Rolled Sheet | 6d. |
| Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ¼ in. thick | 10½d. |
| Rolled plate is the same price as rough cast double rolled. | |

| | Per f. s. | d. |
|---|---|---|
| Wire Rolled, ¼ in. thick | 0 | 9½ |
| Wire Cast, ¼ in. thick | 0 | 9½ |
| Georgian Wired Cast | 0 | 10 |
| "Calorex" Sheet, 21 oz. | 2 | 6 |
| " " 32 oz. | 4 | 0 |
| " Cast, ⅛ in. thick | 0 | 9½ |
| " " ⅜ in. thick | 1 | 0 |
| " " ¼ in. thick | 1 | 2 |
| Non Actinic Glass, ¼ in. thick | 0 | 9½ |
| " " ⅜ in. thick | 1 | 0 |
| " " ¼ in. thick | 1 | 2 |

"VITA" GLASS.

| | Per ft. s. | d. |
|---|---|---|
| "Vita" Plate Glass, about ⅛ in. thick— To 7 ft. super | 5 | 0 |
| Over 7 ft. super | 7 | 6 |
| "Vita" Sheet Glass, about 18/20 oz. | 2 | 0 |
| Cathedral "Vita" Glass: ⅛ in. thickness | 2 | 0 |
| ¼ in. " | 3 | 0 |
| ⅛ in. Georgian Wired "Vita" Glass | 3 | 6 |

GLASS BRICKS.

| | s. | d. | |
|---|---|---|---|
| P.B. 1—8 in. × 4¼ in. × 3¼ in. | 2 | 9 | each nett |
| P.B. 2—5¼ in. × 5¼ in. × 3¼ in. | 2 | 6 | " |
| P.B. 3—7¼ in. × 7¼ in. × 3¼ in. | 3 | 6 | " |
| P.B. 32—7¼ in. × 7¼ in. × 3¼ in. | 3 | 6 | " |
| Radiused Corner Bricks to match up with— | | | |
| P.B. 2 | 4 | 6 | each nett |
| P.B. 3 | 6 | 0 | " |
| P.B. 32 | 6 | 0 | " |

# FUTURE CONSTRUCTION

## CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications: the name and address at the end refer to the person from whom particulars may be obtained.

### BUILDING

**DECEMBER 6.**

**Fife C.C.**—Work in various trades for erection of central kitchen at Rosyth. C. R. Douglas and Son, 15, East Port, Dunfermline. Dep. £1 1s.

**DECEMBER 7.**

**Cheltenham T.C.**—Erection of 4 experimental houses at Kipling-rd., St. Mark's. G. G. Marsland, B.E. Dep. £2 2s.

**DECEMBER 8.**

***†Kesteven (Lincs) C.C.**—Construction of house at Deeping St. James. C. B. Metcalfe (F.), County A., County Offices, Sleaford, Lincs.

**DECEMBER 9.**

**Sheffield T.C.**—Erection of meals kitchen hutment at Owler-la. School. W. G. Davies, City A. Dep. £2.

**Cookstown R.D.C.**—Repairs to 179 cottages. J. M'Cammon, C., Boardroom, Cookstown. Dep. £3 3s.

**DECEMBER 11.**

**Saltburn-by-the-Sea U.D.C.**—Reconstruction of pier. T. Grant, E. and S. Dep. £2 2s.

**DECEMBER 16.**

**Ballymoney R.D.C.**—Repairs to 850 cottages. J. Hanna, C., Council Offices. Dep. £5 5s.

### PAINTING, ELECTRIC LIGHTING, HEATING, ETC.

**DECEMBER 7.**

**Birkenhead T.C.**—Painting interior and exterior of Manor Grange. B.E.

**DECEMBER 11.**

**Beckenham T.C.**—Steam, hot and cold water services and heating services at canteen kitchen and boiler house at Marian Vian school. J. Dove, A.M.Inst.C.E., B.E. Dep. £2.

**DECEMBER 23.**

***Worcester T.C.**—Internal redecoration and repair of Infirmary Block and Nurses' Home at Municipal Homes, Tallow Hill. City E. Dep. £2 2s.

### MATERIALS, ETC.

**DECEMBER 8.**

**†Notts C.C.**—C. of C.C.

**DECEMBER 11**

**Cumberland C.C.**—County S.
**Montgomery C.C.**—County S.

### ROADS, SEWERAGE AND WATER WORKS

**DECEMBER 6.**

**East Retford T.C.**—Construction of road foundations, sewers, etc. B.S. Dep. £1 1s.

**DECEMBER 7.**

**Swansea C.B.**—Construction of roads and sewers. J. B. Bennett, A.M.Inst.C.E., B.E. and S. Dep. £2 2s.

**DECEMBER 15**

**Bilton T.C.**—Site levelling and sewerage works at Stowlan estate. T.C. Dep. £5 5s.
**Wenlock T.C.**—Sinking and partial lining with mild steel tubes of borehole. A. H. S. Waters, M.Inst.C.E., 25, Temple-row, Birmingham 2. Dep. £2 2s.

**DECEMBER 18.**

**Eye T.C.**—Sinking of 10-in. or 12-in. dia. borehole. Lt.-Col. W. Herbert Bateman, M.C., M.Inst.C.E., Batheaston, Bath. Dep. £1 1s.

### PUBLIC APPOINTMENTS

**DECEMBER 9.**

***Bolton E.C.**—Head of Building Dept. £500-£25-£650, plus £52 bonus. G. A. Cox, D. of E., Ed. Offices, Nelson-sq.
**Dartford R.D.C.**—Architect and Housing Superintendent. £600-£25-£800 p.a., inclusive of bonus. E. James, C., Council Offices, West Hill, Dartford.

**DECEMBER 14.**

***Derbyshire C.C.**—Senior Assistant Architect. £600-£25-£700, plus £49 8s. bonus. Applications (with three testimonials) to J. Harrison, County A., County Offices, Derby.

**DECEMBER 16.**

***Isle of Wight C.C.**—Temporary Architectural Assistant. £300-£25-£350 p.a., plus bonus. Applications (with three testimonials) to P. E. White, C. of C.C., County Hall, Newport, I. of W.

**DECEMBER 21.**

**Shropshire C.C.**—County Planning Officer. £800-£25-£900 p.a., plus £33 16s. bonus. Application forms from County S., County-bldgs., Shrewsbury.

# GENERAL BUILDING WORK

**Ashby-de-la-Zouch.**—U.D.C. propose housing sites at Blackfordby and Ashby.
**Ashton-in-Makerfield.**—Lancashire E.C. propose junior and infants' school at Downall Green.
**Blaby.**—Reconstruction Committee propose youth centre.
**Bradford.**—Methodist District Youth Council propose adaptation of Methodist Chapel at Ryecroft as Youth Hostel.
**Brownhills.**—U.D.C. propose 50 houses.
**Coventry.**—Trustees of Coventry and District Crippled Children's Guild Home, Allesley, propose new premises.
**Coventry.**—E.C. propose establishment of boarding school.
**Crewe.**—Cheshire C.C. propose maternity home, at £25,000.
**Darlaston.**—R.D.C. propose housing site at Rough Hay.
**Darlington.**—H. B. Richardson, Skinnergate, Darlington, prepared plans for alterations at Regent Cafe, Skinnergate, and also for churchhall at Ravensdale-rd., for St. Cuthbert's Church.
**Dronfield.**—U.D.C. propose housing site at Gosforth-la.
**Halifax.**—T.C. propose 256 houses at Cousen-la.
**Hull.**—T.C. propose 30 houses at corner of Greenwood-av. and Endike-la.
**Leicester.**—E.C. propose additional nursery schools and nursery classes.—Markets Committee propose erection of two-storey abattoir.
**Middlesbrough.**—Corporation Town Planning Committee considering plans for rebuilding of "Leeds Hotel," for North-Eastern Breweries, Ltd. Architects, Kitching & Co., 40, Albert-rd., Middlesbrough.
**Manchester.** — Newhaven Estates, Ltd., Chester-rd., Hazel-gr., nr. Stockport, propose two pairs of semi-detached houses at Crescent-rd., Crumpsall. Plans by P. Cummings (F.), 25, Cross-st.
**Mansfield.**—Notts C.C. propose extensions at Ransom sanatorium.
**Market Bosworth.**—R.D.C. propose houses at Ibstock, Market Bosworth and Barlestone.
**Mexborough.**—Montagu Hospital Board of Governors propose extensions at Montagu Hospital, Adwick-rd.
**Newcastle-on-Tyne.**—City Council to proceed with repairs and reinstatement work at public baths at Heaton. Plans by City Property S.
**Newcastle-on-Tyne.**—City Council considering extensions to City Mental Hospital, Coxlodge.
**Northampton.**—T.C. to erect 50 houses.
**Prestatyn.**—J. W. Lyons, Caterer, Coast-rd., Rhyl, proposes holiday camp and erection of 85 chalets.
**Preston.**—Lancashire Association of Girls' Clubs and Mixed Clubs propose Holiday Guest House at Longridge-Garstang area.
**Pwllheli.**—Caernarvonshire E.C. propose extensions at County school.
**Rotherham.**—R.D.C. propose housing site at Dalton Parva.
**Seamer.**—Building Committee propose community centre, at £5,000.

FEDERATED EMPLOYERS' INSURANCE ASSOCIATION LTD. ESTABLISHED 1904

The Leading Office for

**Contract Guarantee Bonds**

*ALSO*

FIRE

WORKMEN'S COMPENSATION

PUBLIC LIABILITY

MOTOR

ETC. ETC.

Head Office:

**8 KING STREET, MANCHESTER, 2**

London Office:

23, Lawrence Lane, Cheapside, London, E.C.2

**Solihull.**—Warwickshire E.C. propose extensions at Hatchford-cres. school, at £3,750.
**Stapleford.**—Notts E.C. propose additions at Albany school, at £2,265.
**Stockport.**—Connell & Bailey, Ltd., printers, St. Peter's-sq., propose factory.
**Stretford.**—T.C. propose 218 houses and 42 bungalows at Lostock housing estate, Barton-rd.
**Urmston.**—U.D.C. preparing plans for 480 houses at Stott estate.—U.D.C. approved 10 flats, Western-rd., Flixton, for J. Maunders & Sons, Ltd., builders, 554, Barton-rd., Stretford.
**Warwickshire.**—C.C. propose extensions at Monroe Devis Maternity Home, Tissington, at £12,100.
**Wellingborough.**—U.D.C. to erect 50 houses.
**West Lancashire.**—R.D.C. prepared plans for 60 houses at Haskyne.
**West Sussex.**—C.C. propose temporary Junior Technical School for Building at Union-pl., Worthing, at £5,385.—Plans approved by E.C. for advanced chemistry laboratory and advanced physics laboratory at High School for Boys, Worthing, at £2,800.
**Wirral.**—Cheshire C.C. and Birkenhead T.C. propose joint scheme for establishment of Home for the Blind.
**Wolverhampton.**—Board of Governors of Grammar school propose gymnasium and additional classroom and dining accommodation.
**Worksop.**—Notts E.C. propose two additional classrooms at Lincoln-st. schools.
**York.**—Licensing Justices approved structural alterations at "Golden Lion" Hotel, Church-st., for J. J. Hunt, Ltd., Ebor Brewery.

# BRITISH RESTAURANTS AND CANTEENS

**Bolton.**—E.C. approved kitchen at 88, Simon and Jude's school for Rev. W. L. Ackroyd and Managers.
**Cambs.**—E.C. propose central kitchen at Place Pavilion, Soham.
**Cumberland.**—E.C. propose school canteen at Borrowdale Voluntary school, Windermere.
**Durham.**—County E.C. to provide central kitchens at Ford, Medomsley and South Church to plans by F. Willey, 34, Old Elvet, Durham.
**Hyde.**—E.C. propose school standard kitchen at Flowery Field estate.
**North Riding.**—C.C. to spend further £3,230 on provision of school canteens and dining centres.
**Oldham.**—E.C. approved kitchen and dining-room at Werneth school.
**Upholland.**—Lancashire E.C. propose kitchen and dining-hall at Grammar school.
**Wardley Colliery (Co. Durham).**—Miners' Welfare Committee to extend miners' canteen.

# TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government departments.*

**Basford.**—Extensions for maternity unit at County P.A.C. Institution for Notts C.C. E. W. Roberts (A.), County A., Shire Hall, Nottingham: *Harper & Green, Ltd., Austin-dr., Carlton, Nottingham, £16,117.
**Brierfield.**—Erection of two 'bus shelters, for U.D.C.: *C. Heap, Hardy-av., Brierfield, nr. Burnley.
**Brighouse.**—Adaptation of Brook House, Atlas Mill-rd., for school clinic, for T.C. H. A. Sneezum, B.E.: *Wm. Halliwell, Ltd., Wakefield-rd., Brighouse, £1,106 (in lieu of tender given in November 17 issue).
**Evesham.**—(a) Alterations to Master's sitting-room at County P.A.C. Institution; (b) extensions and alterations at Prince Henry Grammar school, for C.C. H. Rowe & Son, Acting County Architects, 38, Foregate-st., Worcester: *(a) and (b), Espley & Co., Ltd., 77, High-st., Worcester, £272 and £2,929.
**Felling-on-Tyne.**—Erection of central school kitchen at Falla Park-rd., for M.O.W. on behalf of E.C.: *D. Glen, Bk. Queen's-rd., Jarrow-on-Tyne.
**Kettering.**—Sewerage, drainage, road construction and incidental works for advance preparation of housing sites. Plans by F. Smith, Acting B.S., Gold-st.: *Sunley & Co., Ltd., Wellingborough-rd., Northampton.
**Lancashire.**—Buildings: *W. Peak, 17, Church-st., Warrington.
**¶London (Air Ministry).**—List of new contracts to the value of £500 or over for the week ended November 25, 1944:—
General maintenance work: James Blake, Ltd., Aberdeen; Thos. Gill and Son, Norwich; Wm. T. Nicholls, Ltd., Gloucester.
Building work: E. Coleman, Ltd., East Kirkby, Notts.
**¶London (Ministry of Works).**—Contracts placed by M.O.W. during the week ending November 23:—
Cardiganshire: Civil engineering, Alun Edwards, Ltd., Cefn-y-Bedd, Wrexham.
Carmarthenshire: Building work, A. N. Coles

(Ctrs.), Ltd., Marshfield-rd., Castleton, Cardiff.
Ches: Building work, W. H. Roberts, 50, King-st., Wallasey.

Durham: Building work, Henry Mole, The Vineries, Chester-le-Street.
Hampshire: Building work, Holst & Co., Ltd., 1, Victoria-st., S.W.1.
Lancs: Building work, J. W. Lee, Ltd., Yarrow Saw Mills, Chorley; Mertees Construction Co., 25, Cross-st., Manchester; R. L. Dilworth, Ltd., Damside-st., Lancaster.
Lincs: Building work, S. Cartledge & Son, 507, Weelsby-st., South Grimsby.
Somersetshire: Building work, F. J. Blackmore & Son, Ltd., Argyle House, Twerton West, Bath.
Suffolk: Building work, Cubitt & Gotts, Ltd., Station Works, Westerfield, Ipswich.
Surrey: Building work, Sir R. McAlpine & Sons (London), Ltd., 80, Park-la., W.1.
Yorks: Building work, Smith & Blakeney, 36, Beeston-rd., Leeds.

**¶London (War Dept.).**—Works contracts placed by War Dept. for week ended November 18:—
Lancs: Roadwork, Richard Parker, Catterall, Lancs.
London: Miscellaneous work, Frederick Coyle & Co., Ltd., Brentford, Middx.
**Montgomeryshire.** — Erection of canteen kitchen at Manafan C.E. school, for E.C. T. G. Davies, D. of E., County Ed. Offices, Newtown: *John Evans & Sons, Amman-rd., £288 10s.
**Montgomeryshire.**—Alterations at Village Institute, Penybontfawr, to form canteen, for E.C. T. G. Davies, D. of E., County Ed. Offices, Newtown: *B.D.C. Quarries, Ltd., Dolwyddelon, £215.
**Urmston.**—Restoration and conversion of 3, Princess-rd., Flixton-rd., into two flats, for U.D.C. E. L. Leeming, S.: *Dervis Franklyn, 75, Ullswater-rd., Davyhulme, Manchester, £899.
**Wakefield.**—Road construction, surface water drains, sewerage and incidental works for advance preparation of housing sites, for Wakefield Group of local authorities. S. C. Wardley, City E.: *Hadsphaltic Construction Co., Ltd., Ibex House, Minories, London, E.C.3, £119,378.
**Worksop.**—Erection of prefabricated building at Technical College, for Notts E.C. E. W. Roberts (A.), County A., Shire Hall, Nottingham: *T. & H. Hopkin, £1,206.

**Slate Repairing Clips.**

Messrs. Quaife Bros, of 5, Bolton-road, Chiswick, W.4., have produced and patented an improved form of clip for roof slating repair work. It consists of two parts, the strip and the locking buckle, and is made of electrolytic zinc, though the roof strips may be in lead if required. From the sample which we have seen it appears to be an efficient and durable device, easily fixed.


UNITE FOR STRENGTH

FEDERATION OF MASTER BUILDERS

MEMBERSHIP 1941—856
MEMBERSHIP 1942—1,612
MEMBERSHIP TO DATE—4,000
LONDON REGION 37 AREA OFFICES
PROVINCIAL BRANCHES
BATH, BRISTOL, CARDIFF, EXETER, FROME, HIGH WYCOMBE, HULL, MANCHESTER, MERSEYSIDE, PLYMOUTH, PORTSMOUTH, SALISBURY, TORQUAY and WELLINGBOROUGH.
(Many Branches in course of formation)

SUBSCRIPTION £3.3.0 p.a.

'Phone or write
Secretary:
23, Compton Terrace, Upper St., N.1
CANonbury 2041/3

THE LONDON & LANCASHIRE INSURANCE Co LTD

INSURANCES ON BUILDINGS in course of ERECTION
LOWEST RATES
Head Offices:
155, LEADENHALL ST., LONDON, E.C.2
45, DALE STREET, LIVERPOOL
Chief Administration:
7, CHANCERY LANE, LONDON, W.C.

C. H. COATES LTD.
BUILDERS AND PUBLIC WORKS CONTRACTORS
LONDON OFFICES
WINDSOR HOUSE
VICTORIA ST., S.W.1
ABBEY 1800
WORKS OFFICES
DAVIS ROAD
SURBITON, SURREY
ELMBRIDGE 5878

HARDWOOD FLOORING
STEVENS & ADAMS LTD.
Point Pleasant, Wandsworth, S.W.18

Boyle's Patent "Air-Pump" Ventilator
OVER TWO MILLION IN USE
ROBERT BOYLE & SON,
Ventilating Engineers, Emergency Address: 34 MORLAND AV., E. CROYDON, SURREY. Tel.: Addiscombe 1133

START THE PEACE WITH A NEW FACTORY
We reconstruct and build all types and sizes.
W&M NEGUS LTD.
Station Works · KING JAMES ST. S.E.1. (WAT. 5474)

GALBRAITH
BROTHERS LIMITED
give notice that they have now removed to New Offices at
34 & 35, HIGH HOLBORN
W.C.1
Telephone: CHAncery 7901-3